Additional Compliance Cost Sensitivities

April 9, 2013

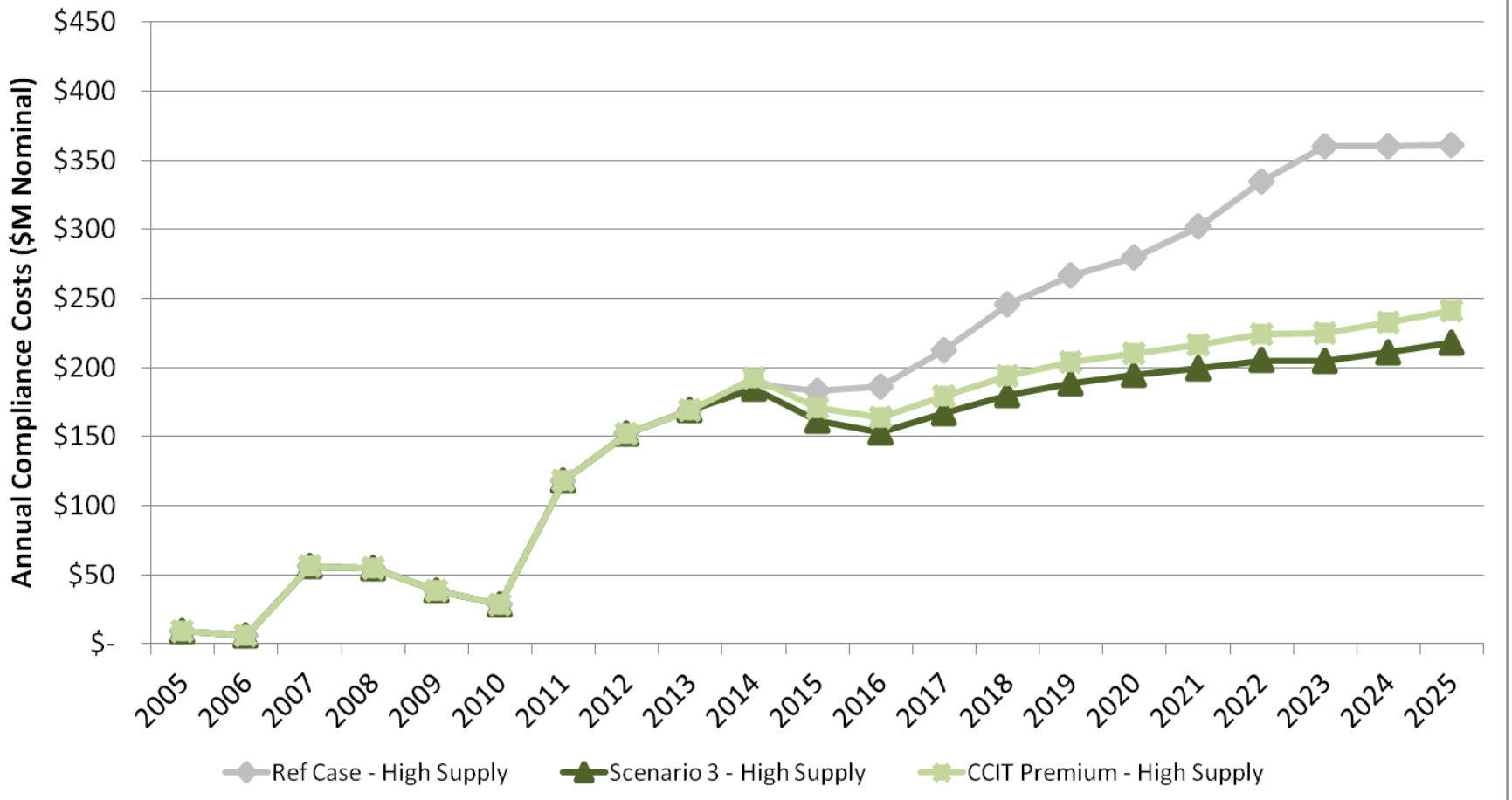
Sustainable Energy Advantage, LLC

Contracted Class I Tier @ Premium to Market

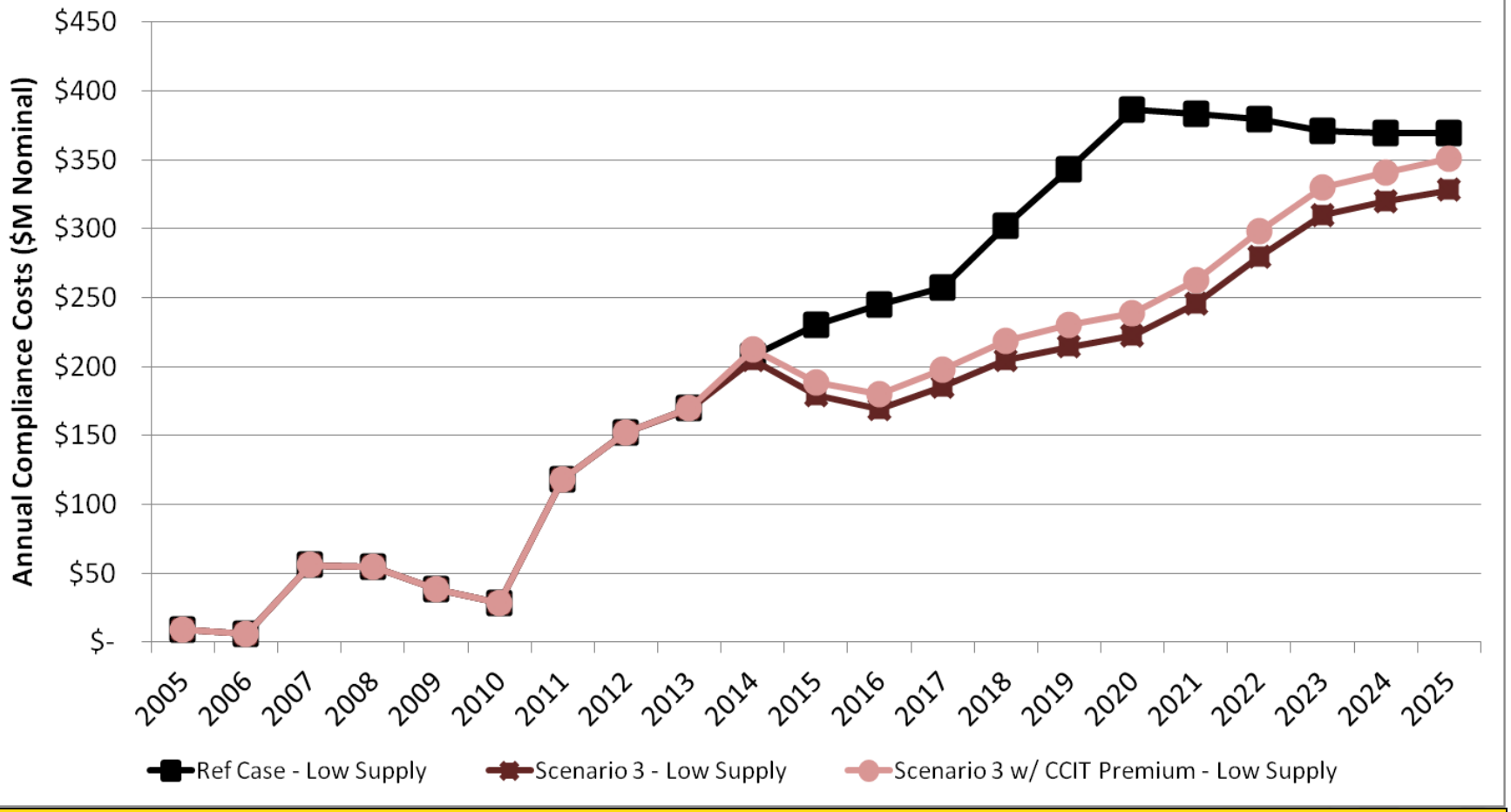
Explanation and Methodology

- Compliance costs projections described in RPS study assume Contracted Class I resources are procured at no premium to market prices → stakeholders have expressed concern that this may not be a likely outcome
- The sensitivity (run on Scenario 3) assumes Contracted Class I resources are procured at a premium of $10/MWh to the projected bundled commodity market value of energy and capacity
- The total premium is scalable to different contract price levels, i.e. half the premium would have half the incremental compliance cost impact, twice the premium would have twice the premium, etc.

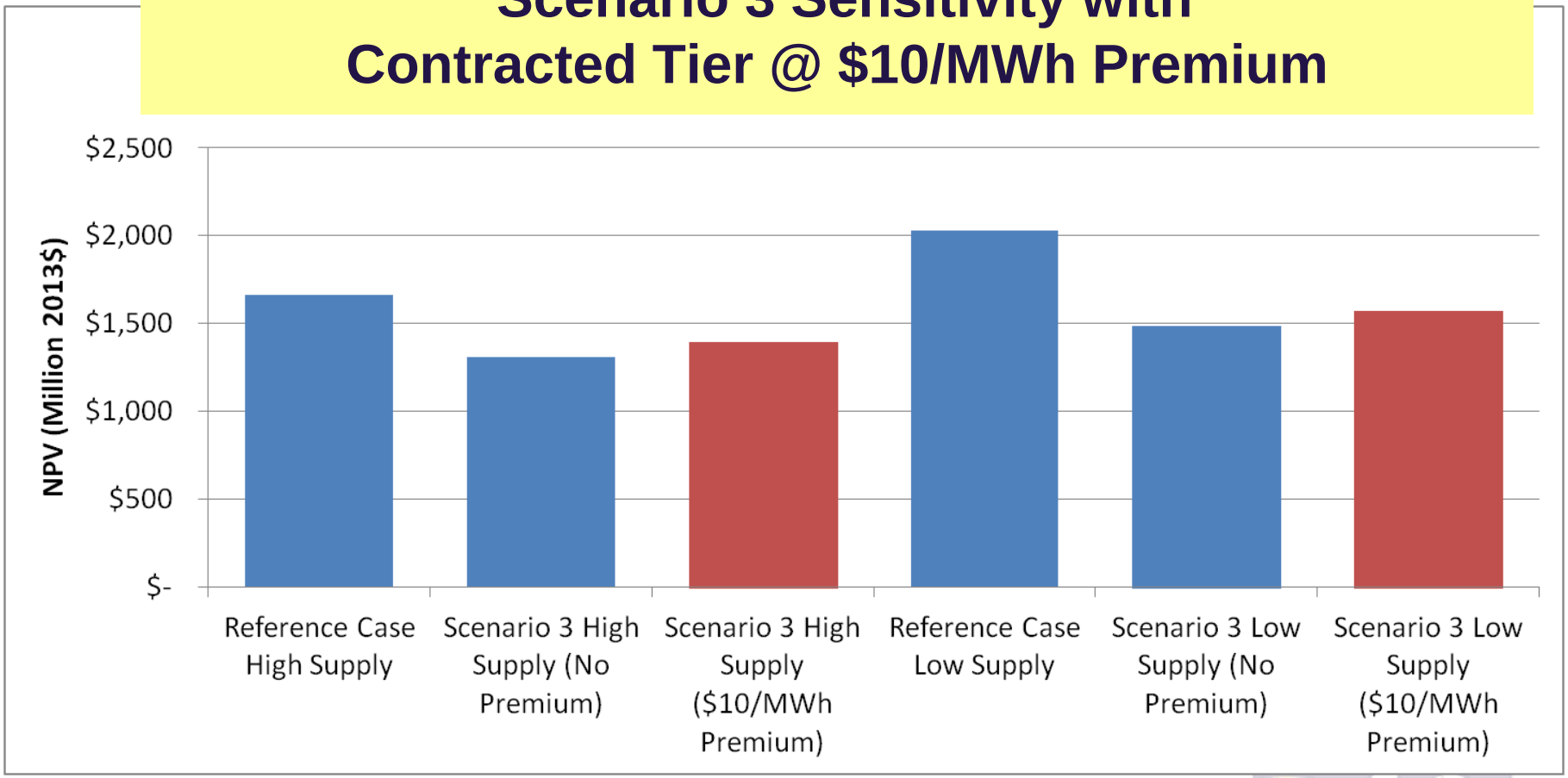
Class I RPS Annual Compliance Cost Projection: Scenario 3 Sensitivity with Contracted Class I Tier @ $10/MWh Premium (High Supply Case)



Class I RPS Annual Compliance Cost Projection: Scenario 3 Sensitivity with Contracted Class I Tier @ $10/MWh Premium (Low Supply Case)



NPV of Projected Class I RPS Compliance Costs from 2013-2022: Scenario 3 Sensitivity with Contracted Tier @ $10/MWh Premium



Discount rate = 7.5%

Class I RPS Annual Compliance Cost Projection: Scenario 3 Sensitivity with Contracted Class I Tier @ $10/MWh Premium

$M, Nominal	High Supply			Low Supply		
Year	Reference Case	Scenario 3 (No Premium)	Scenario 3 w/ CCIT @ $10/MWh premium	Reference Case	Scenario 3 (No Premium)	Scenario 3 w/ CCIT @ $10/MWh premium
2013	$169.31	$169.23	$169.34	$169.80	$169.52	$169.62
2014	$187.45	$184.28	$192.05	$207.45	$204.46	$212.25
2015	$182.70	$161.17	$170.49	$230.29	$178.98	$188.32
2016	$186.24	$153.02	$163.89	$245.06	$169.35	$180.24
2017	$212.38	$166.54	$178.99	$257.22	$185.44	$197.91
2018	$245.48	$179.82	$193.84	$301.84	$204.38	$218.43
2019	$266.22	$188.15	$203.79	$343.12	$214.30	$229.97
2020	$279.71	$194.76	$210.42	$386.50	$222.63	$238.33
2021	$301.66	$199.11	$216.26	$383.10	$245.32	$262.47
2022	$334.25	$205.03	$223.71	$379.57	$279.46	$298.09
2023	$360.05	$204.98	$225.09	$370.84	$309.87	$329.72
2024	$360.26	$210.71	$232.34	$369.23	$319.49	$340.79
2025	$360.52	$217.64	$240.79	$369.51	$327.97	$350.72

Class I RPS Total Compliance Costs Comparison: Scenario 3 Sensitivity with Contracted Class I Tier @ $10/MWh Premium

	High Supply			Low Supply		
	Reference Case	Scenario 3 (No Premium)	Scenario 3 w/ CCIT @ $10/MWh premium	Reference Case	Scenario 3 (No Premium)	Scenario 3 w/ CCIT @ $10/MWh premium
Total Cost ($M Nominal) 2013-2022	$2,365.40	$1,801.09	$1,922.77	$2,903.97	$2,073.85	$2,195.63
NPV 2013-2022 ($M 2013)	$1,666.30	$1,311.13	$1,393.31	$2,030.26	$1,488.50	$1,570.77

		Scenario 3 High Supply ($10/MWh Premium)	Scenario 3 Low Supply ($10/MWh Premium)
Total Savings/ Premium ($M Nominal)	Savings from Ref Case	$442.64	$708.34
	Premium to Scenario 3 Base case	$121.67	$121.78

		Scenario 3 High Supply ($10/MWh Premium)	Scenario 3 Low Supply ($10/MWh Premium)
NPV of Savings/ Premium ($M 2013)	Savings from Ref Case	$272.99	$459.50
	Premium to Scenario 3 Base case	$82.18	$82.26

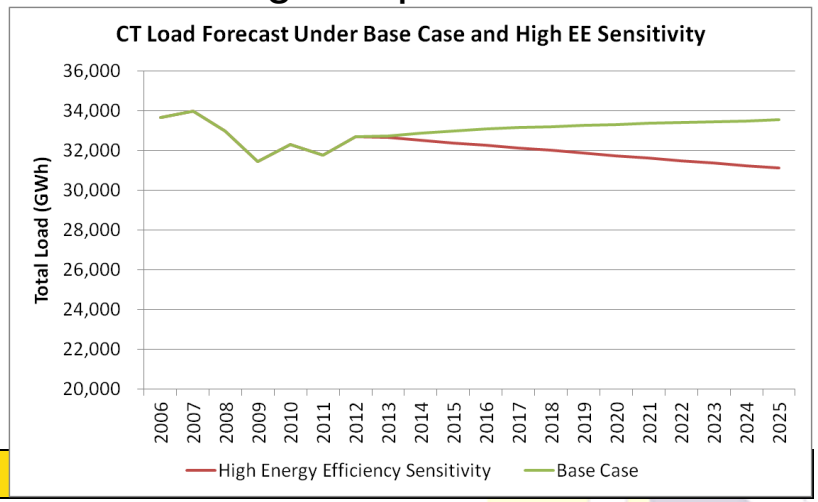
Discount rate = 7.5%

High Energy Efficiency Scenario

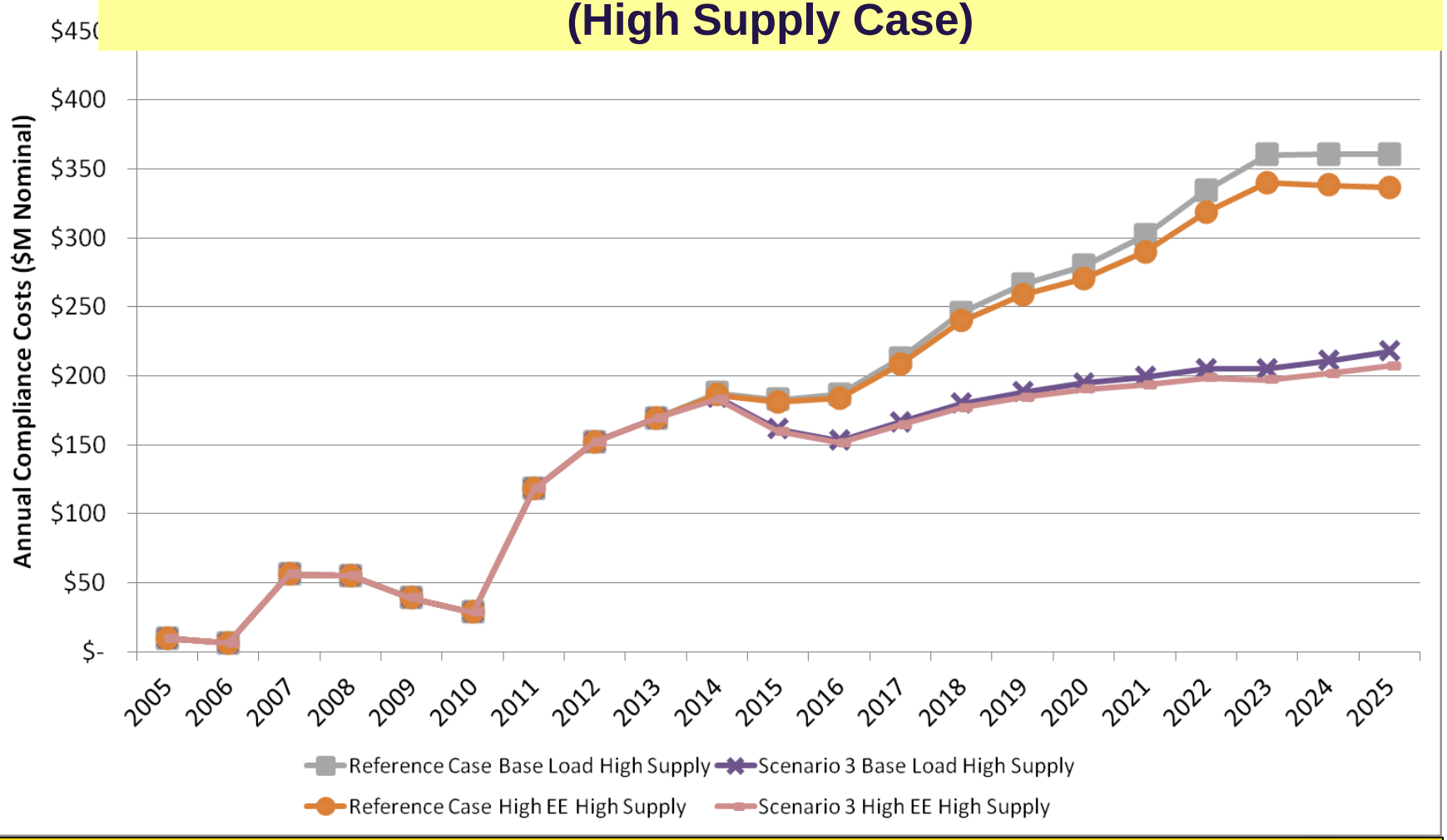
Explanation and Methodology

- Compliance costs projections described in RPS study use 2012 ISO-NE Forecast. 2012 IRP reflects new energy efficiency policies expected to result in reduced load ➔ reduced RPS obligation
- Stakeholders asked about compliance cost impact of reduced load
- The sensitivity (run on Scenario 3 and Reference Cases) assumes increased energy efficiency targets per 2012 IRP ➔ 0.4% annual reduction to prior year's eligible load, beginning July 2013
- Simplified approach approximates savings associated with reduced load while holding REC prices constant, and recalculating compliance cost with reduced demand
  - Conservative estimate, as lower demand would lower REC prices slightly

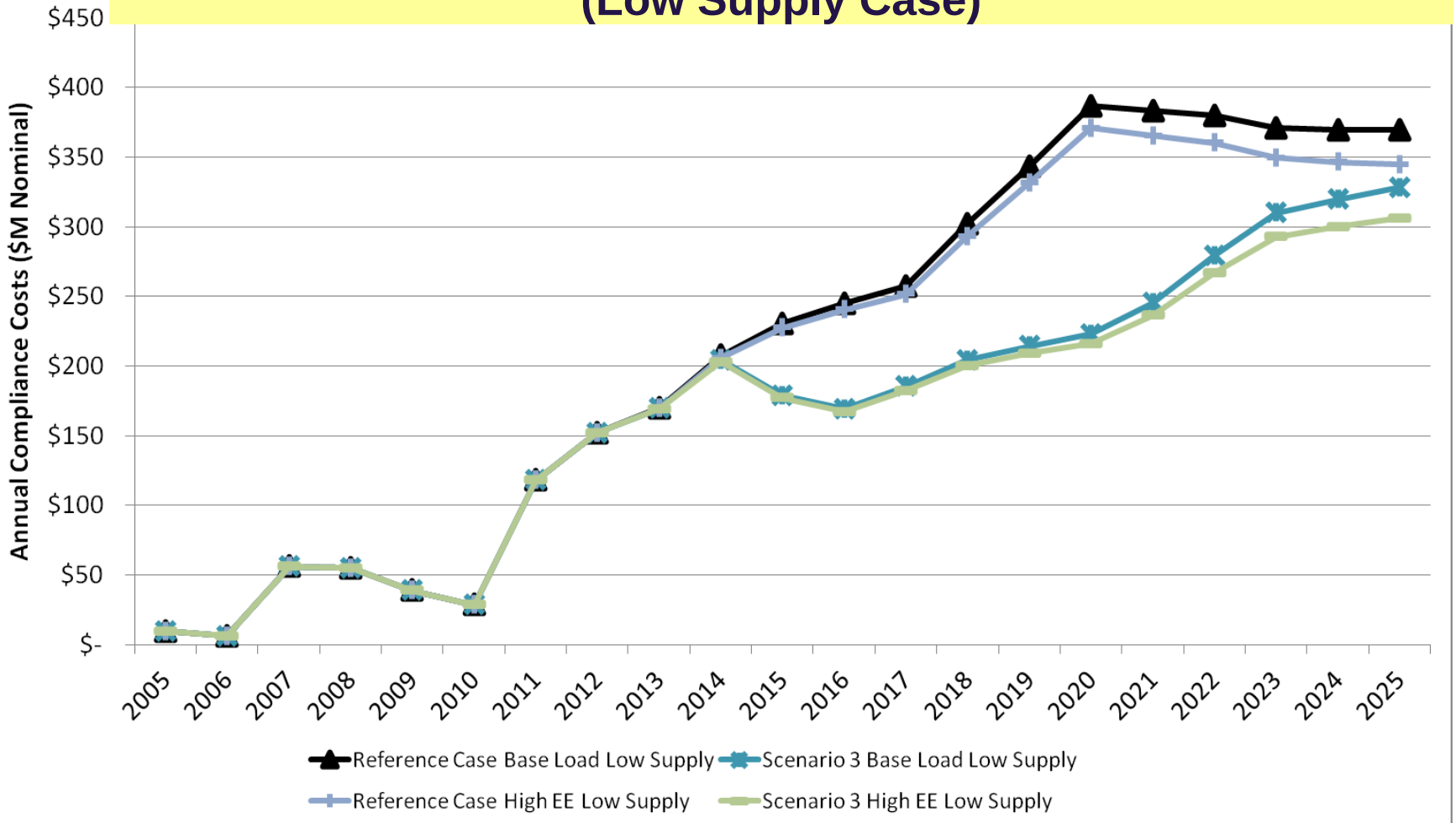
<u>CAGR 2013-2025</u>
Base Case = 0.2%
High EE Case = -0.4%



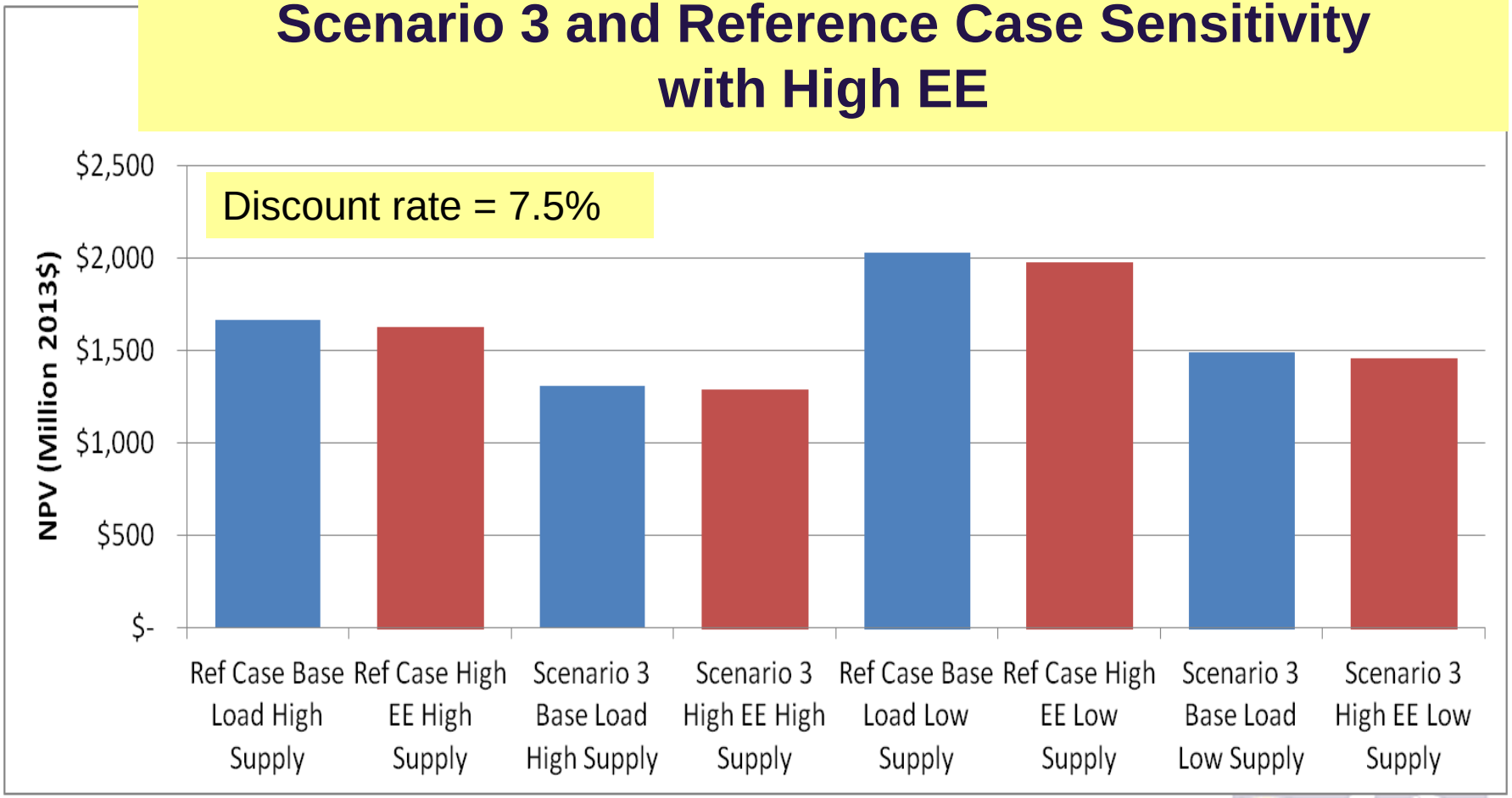
Class I RPS Annual Compliance Cost Projection: Scenario 3 and Reference Case Sensitivity with High EE (High Supply Case)



Class I RPS Annual Compliance Cost Projection: Scenario 3 and Reference Case Sensitivity with High EE (Low Supply Case)



NPV of Projected Class I RPS Compliance Costs from 2013-2022: Scenario 3 and Reference Case Sensitivity with High EE



Class I RPS Annual Compliance Cost Projection: Scenario 3 & Reference Case Sensitivity with High Energy Efficiency

$M, Nominal	High Supply				Low Supply			
Year	Reference Case Base Load	Scenario 3 Base Load	Reference Case High EE Load	Scenario 3 High EE Load	Reference Case Base Load	Scenario 3 Base Load	Reference Case High EE Load	Scenario 3 High EE Load
2013	$169.31	$169.23	$169.10	$169.02	$169.80	$169.52	$169.58	$169.31
2014	$187.45	$184.28	$185.99	$182.85	$207.45	$204.46	$205.73	$202.78
2015	$182.70	$161.17	$180.67	$159.58	$230.29	$178.98	$227.22	$176.99
2016	$186.24	$153.02	$183.56	$151.33	$245.06	$169.35	$240.49	$167.11
2017	$212.38	$166.54	$208.32	$164.17	$257.22	$185.44	$251.33	$182.25
2018	$245.48	$179.82	$239.58	$176.78	$301.84	$204.38	$293.23	$200.04
2019	$266.22	$188.15	$258.67	$184.43	$343.12	$214.30	$331.42	$209.01
2020	$279.71	$194.76	$270.43	$190.14	$386.50	$222.63	$370.81	$216.17
2021	$301.66	$199.11	$289.52	$193.46	$383.10	$245.32	$365.43	$236.25
2022	$334.25	$205.03	$318.29	$198.30	$379.57	$279.46	$360.20	$266.70
2023	$360.05	$204.98	$339.72	$197.04	$370.84	$309.87	$349.61	$292.61
2024	$360.26	$210.71	$338.07	$201.53	$369.23	$319.49	$346.23	$299.95
2025	$360.52	$217.64	$336.55	$207.11	$369.51	$327.97	$344.66	$306.23

Class I RPS Total Compliance Costs Comparison: Scenario 3 & Reference Case Sensitivity with High Energy Efficiency

	High Supply				Low Supply			
	Reference Case Base Load	Scenario 3 Base Load	Reference Case High EE Load	Scenario 3 High EE Load	Reference Case Base Load	Scenario 3 Base Load	Reference Case High EE Load	Scenario 3 High EE Load
Total Cost ($M Nominal) 2013-2022	$2,365.40	$1,801.09	$2,304.11	$1,770.05	$2,903.97	$2,073.85	$2,815.46	$2,026.59
NPV ($M 2013) 2013-2022	$1,666.30	$1,311.13	$1,628.03	$1,291.10	$2,030.26	$1,488.50	$1,974.65	$1,458.71

		High Supply		Low Supply	
		Ref Case High EE	Scen. 3 High EE	Ref Case High EE	Scen. 3 High EE
Total Cost ($M Nominal)	Savings from Same Scen. (Base Load)	$61.29	$31.04	$88.51	$47.26
	Savings from Ref Case (High EE Load)	N/A	$534.06	N/A	$788.86

		High Supply		Low Supply	
		Ref Case High EE	Scen. 3 High EE	Ref Case High EE	Scen. 3 High EE
NPV ($M 2013) 2013-2022	Savings from Same Scen. (Base Load)	$38.27	$20.04	$55.61	$29.79
	Savings from Ref Case (High EE Load)	N/A	$336.94	N/A	$515.94

Discount rate = 7.5%

LT PPAs for New Regional or Existing Class I Resources

Explanation and Methodology: LT PPAs for New Resources

- SB 1138 includes long-term PPA competitive procurement for new regional resources in the near-term to capture expiring Federal incentives

  ➔ compliance cost impact of PPAs not examined in the RPS Study.
- DEEP wishes to explore potential impact on compliance cost of such PPAs.
- Sensitivity analysis (run on Scenario 3) examined:
  - Bundled PPAs including energy+capacity+RECs with regional wind projects in Maine
  - PPA prices of $75, $85 and $95/MWh (nominal levelized)
  - PPA duration ~ 15-20 years beginning 1/1/16
  - PPAs sizes of 150, 300 and 450 MW (nameplate capacity).
  - Observation: Recent competitively-procured wind PPAs in New England (with Federal incentives, with projects not requiring major network transmission investment, and shorter PPA duration) suggest that the lower end of the range may be viable for similar projects, while those needing major transmission investment may require higher revenues.
- Implicit REC price = PPA price - commodity market value (energy, capacity)
  - Energy price reflects nominal all-hours LMP for generator in Maine
  - In face of uncertainty, FCM value de-rated by 50%
- NPV calculated through 2025 to reflect value of hedge
  - NPV calculation through full duration of PPA would show greater ratepayer savings

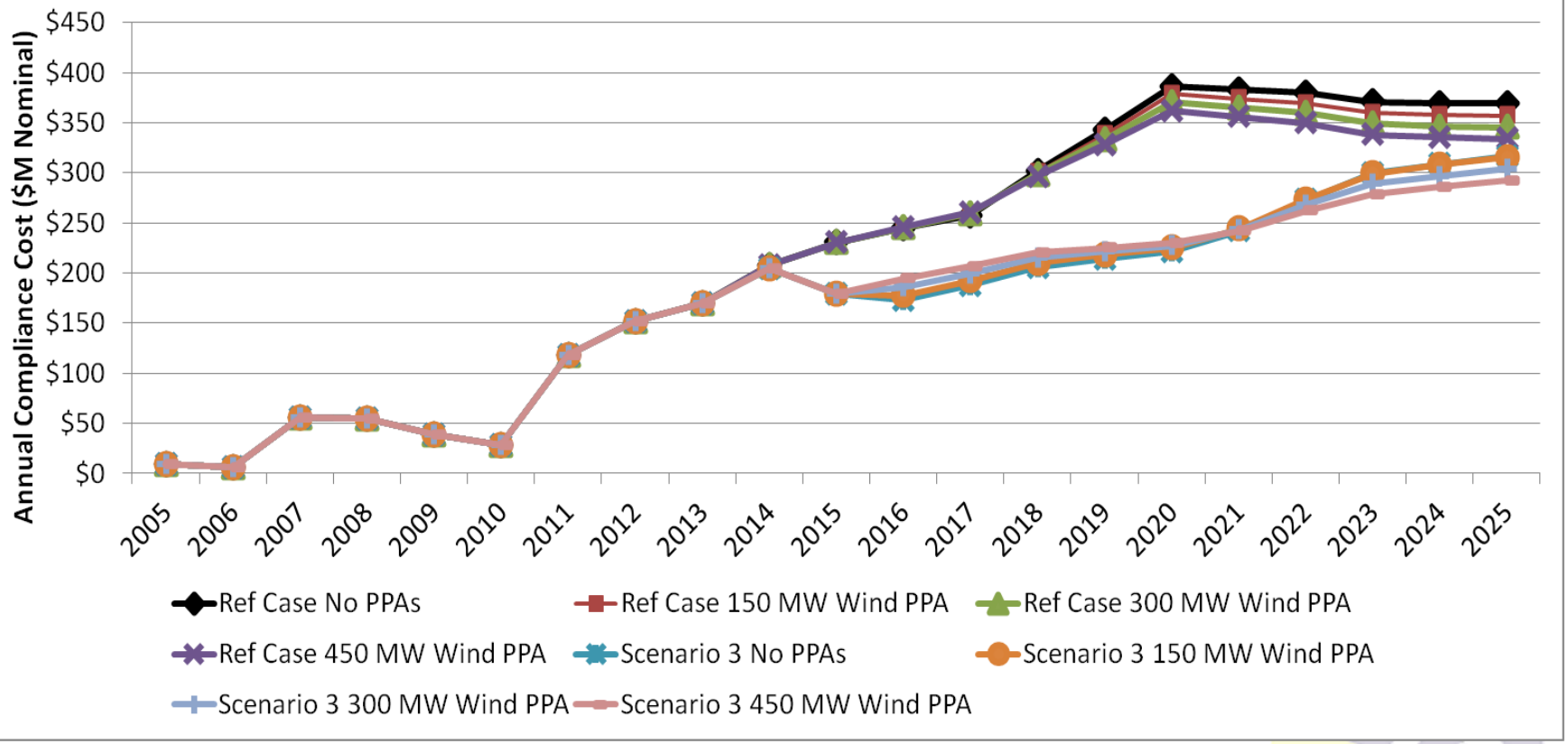
Class I RPS REC Price Projection: Reference Case & Scenario 3 Comparison with LT PPAs for New Wind ($/MWh)

	High Supply		Low Supply		*Bundled Wind PPAs*		
Year	Reference Case	Scenario 3	Reference Case	Scenario 3	*@$75/ MWh*	*@$85/ MWh*	*@$95/ MWh*
2013	$52.06	$52.03	$52.25	$52.14	$32.08	$42.08	$52.08
2014	$44.27	$43.04	$51.98	$50.83	$33.23	$43.23	$53.23
2015	$31.12	$26.45	$46.94	$32.98	$33.59	$43.59	$53.59
2016	$25.69	$18.73	$43.79	$24.82	$34.08	$44.08	$54.08
2017	$28.12	$19.99	$40.77	$27.02	$33.26	$43.26	$53.26
2018	$31.55	$20.78	$46.01	$29.68	$31.70	$41.70	$51.70
2019	$32.26	$21.24	$49.99	$30.22	$28.48	$38.48	$48.48
2020	$32.16	$21.42	$54.39	$30.01	$25.37	$35.37	$45.37
2021	$37.18	$22.40	$54.12	$35.98	$23.41	$33.41	$43.41
2022	$44.11	$23.31	$53.53	$44.22	$20.88	$30.88	$40.88
2023	$50.71	$24.01	$52.94	$52.16	$18.39	$28.39	$38.39
2024	$50.87	$24.76	$52.73	$52.71	$17.22	$27.22	$37.22
2025	$50.87	$25.53	$52.73	$52.71	$16.03	$26.03	$36.03

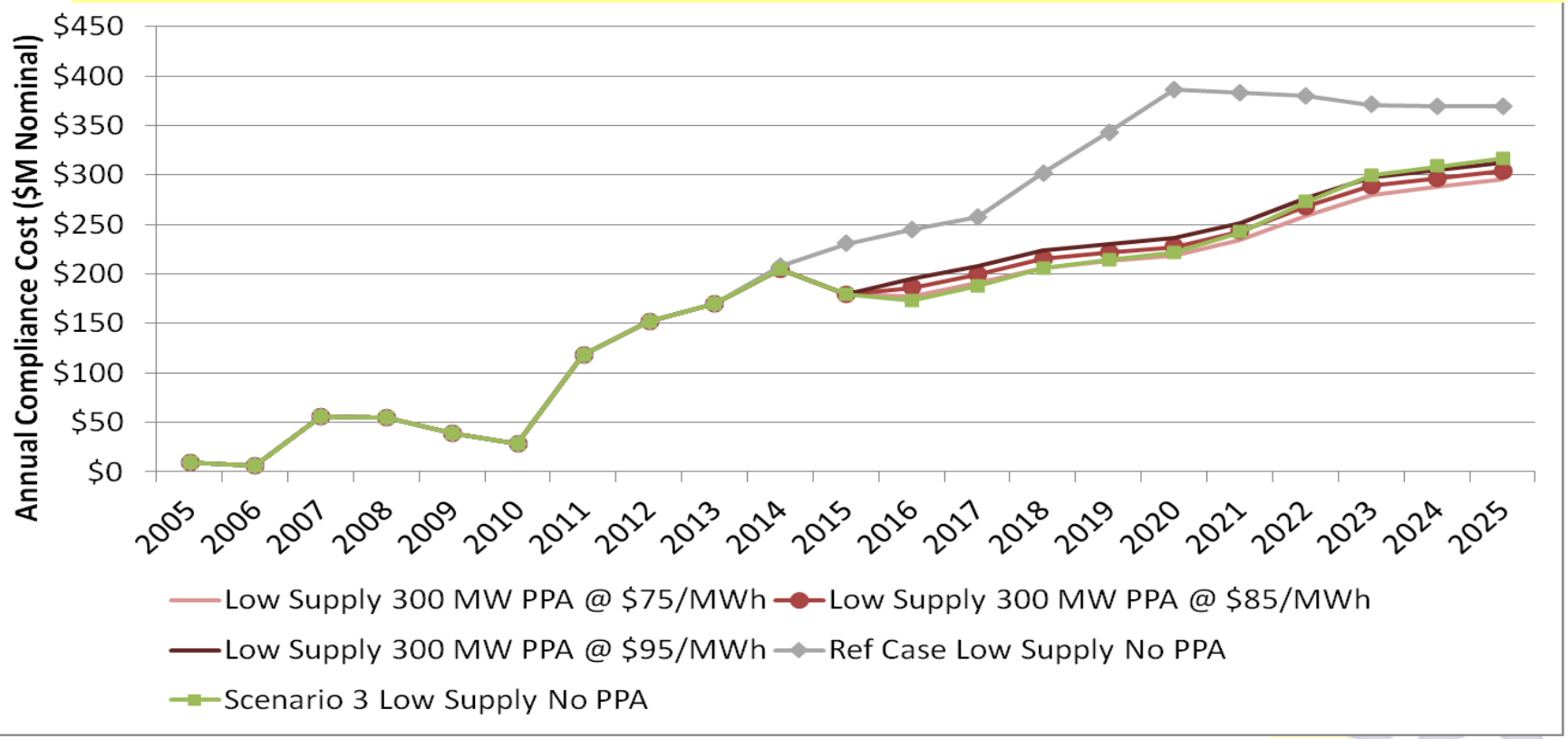
Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with LT PPAs with New Wind @ $85/MWh (levelized) Low Supply Case ($M Nominal)

Year	Reference Case (Base)	Reference Case (150 MW 1/1/16)	Reference Case (300 MW 1/1/16)	Reference Case (450 MW 1/1/16)	Scenario 3 (Base)	Scenario 3 (150 MW 1/1/16)	Scenario 3 (300 MW 1/1/16)	Scenario 3 (450 MW 1/1/16)
2013	$169.80	$169.90	$169.90	$169.90	$169.62	$169.62	$169.62	$169.62
2014	$207.45	$207.56	$207.56	$207.56	$204.56	$204.56	$204.56	$204.56
2015	$230.29	$230.42	$230.42	$230.42	$179.07	$179.07	$179.07	$179.07
2016	$245.06	$245.30	$245.43	$245.55	$172.68	$177.77	$186.12	$194.47
2017	$257.22	$258.41	$259.48	$260.56	$187.99	$192.56	$199.60	$206.64
2018	$301.84	$300.10	$298.23	$296.36	$205.63	$209.68	$214.89	$220.11
2019	$343.12	$338.33	$333.34	$328.35	$214.41	$218.01	$221.59	$225.17
2020	$386.50	$378.47	$370.23	$361.98	$221.81	$225.08	$227.40	$229.73
2021	$383.10	$374.04	$365.06	$356.08	$241.99	$244.20	$243.08	$241.97
2022	$379.57	$369.52	$359.70	$349.87	$272.81	$273.56	$267.77	$261.99
2023	$370.84	$359.61	$348.96	$338.31	$299.75	$299.08	$288.77	$278.46
2024	$369.23	$357.43	$346.36	$335.30	$308.64	$307.81	$296.76	$285.70
2025	$369.51	$357.04	$345.46	$333.88	$316.53	$315.62	$304.05	$292.48

Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with New Wind PPA @ $85/MWh, Varying PPA Sizes (Low Supply Case)

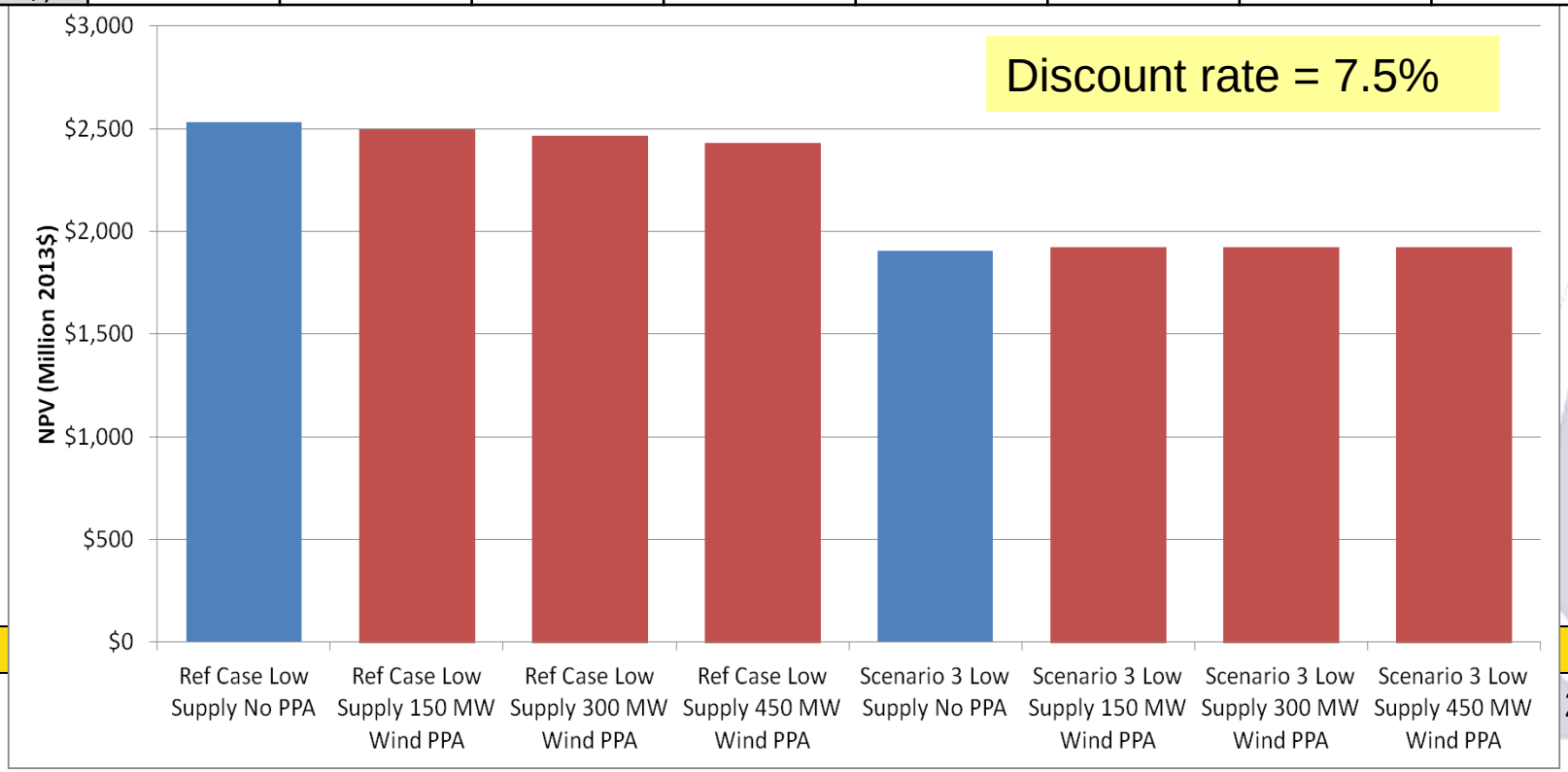


Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with 300 MW PPA for New Wind @ $75, $85 and $95/MWh (Low Supply Case)



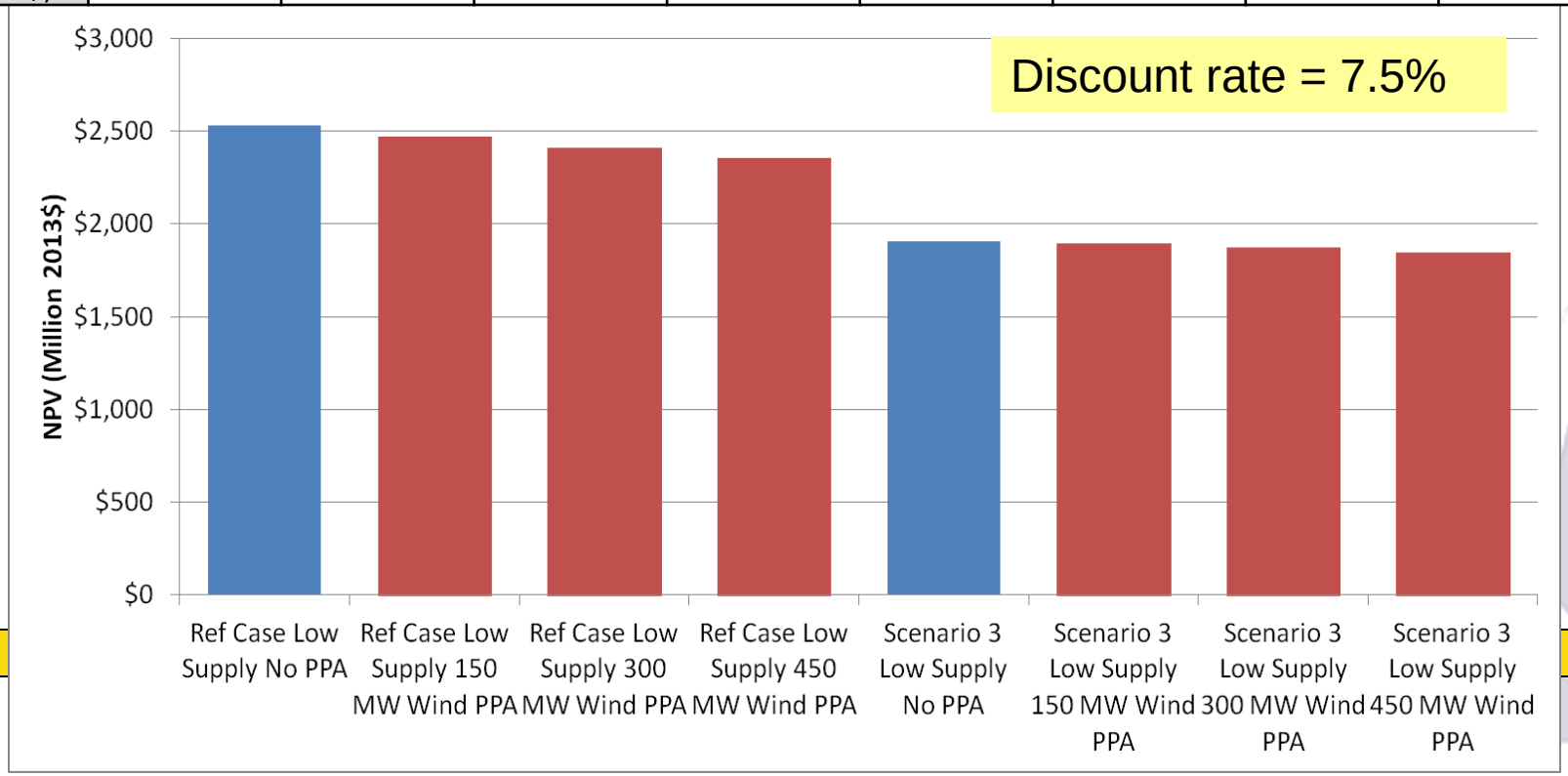
NPV of Projected Class I RPS Compliance Costs 2013-2025: Reference Case & Scenario 3 Sensitivity LT PPAs for New Wind @ $85/MWh (Low Supply Case)

	Ref Case Low Supply No PPAs	Ref Case Low Supply 150 MW Wind PPA	Ref Case Low Supply 300 MW Wind PPA	Ref Case Low Supply 450 MW Wind PPA	Scenario 3 Low Supply No PPAs	Scenario 3 Low Supply 150 MW Wind PPA	Scenario 3 Low Supply 300 MW Wind PPA	Scenario 3 Low Supply 450 MW Wind PPA
NPV 2013-2025 (Million 2013$)	$2,532	$2,498	$2,464	$2,430	$1,906	$1,921	$1,922	$1,923



NPV of Projected Class I RPS Compliance Costs 2013-2025: Reference Case & Scenario 3 Sensitivity LT PPAs for New Wind @ $75/MWh (Low Supply Case)

	Ref Case Low Supply No PPAs	Ref Case Low Supply 150 MW Wind PPA	Ref Case Low Supply 300 MW Wind PPA	Ref Case Low Supply 450 MW Wind PPA	Scenario 3 Low Supply No PPAs	Scenario 3 Low Supply 150 MW Wind PPA	Scenario 3 Low Supply 300 MW Wind PPA	Scenario 3 Low Supply 450 MW Wind PPA
NPV 2013-2025 (Million 2013$)	$2,532	$2,472	$2,413	$2,353	$1,906	$1,896	$1,871	$1,846



Explanation and Methodology: LT PPAs for *Operating* Resources

- As an alternative to biomass eligibility changes, PPAs for *operating* resources could provide revenue stability necessary for generators to finance emissions or efficiency retrofits and ensure continued operation while hedging ratepayer cost
- This sensitivity examines potential impact of a PPA procurement for *operating* resources on compliance costs
- Sensitivity analysis (run on Scenario 3) examined:
  - Bundled PPAs including energy+capacity+RECs with operating Class I baseload generators
  - PPA prices of $75, $90 and $100/MWh (nominal levelized)
  - PPA duration ~ up to 10 years and begin 1/1/16 (also tested for PPA beginning 7/1/13 for effect of contract timing)
  - PPA sizes of 150 and 300 MW (baseload, nameplate capacity).
  - Observations: $75/MWh price range more accessible for projects that don't have to pay for fuel; operating biomass plants may need > $75 to break even on fuel and short-run operating cost, and may need in $90 range or more to justify continued operation or retrofits.
- Implicit REC price = PPA price - commodity market value (energy, capacity)
  - Energy price reflects nominal all-hours LMP for generator in NH, full FCM value
- NPV calculated through 2025 to reflect value of hedge

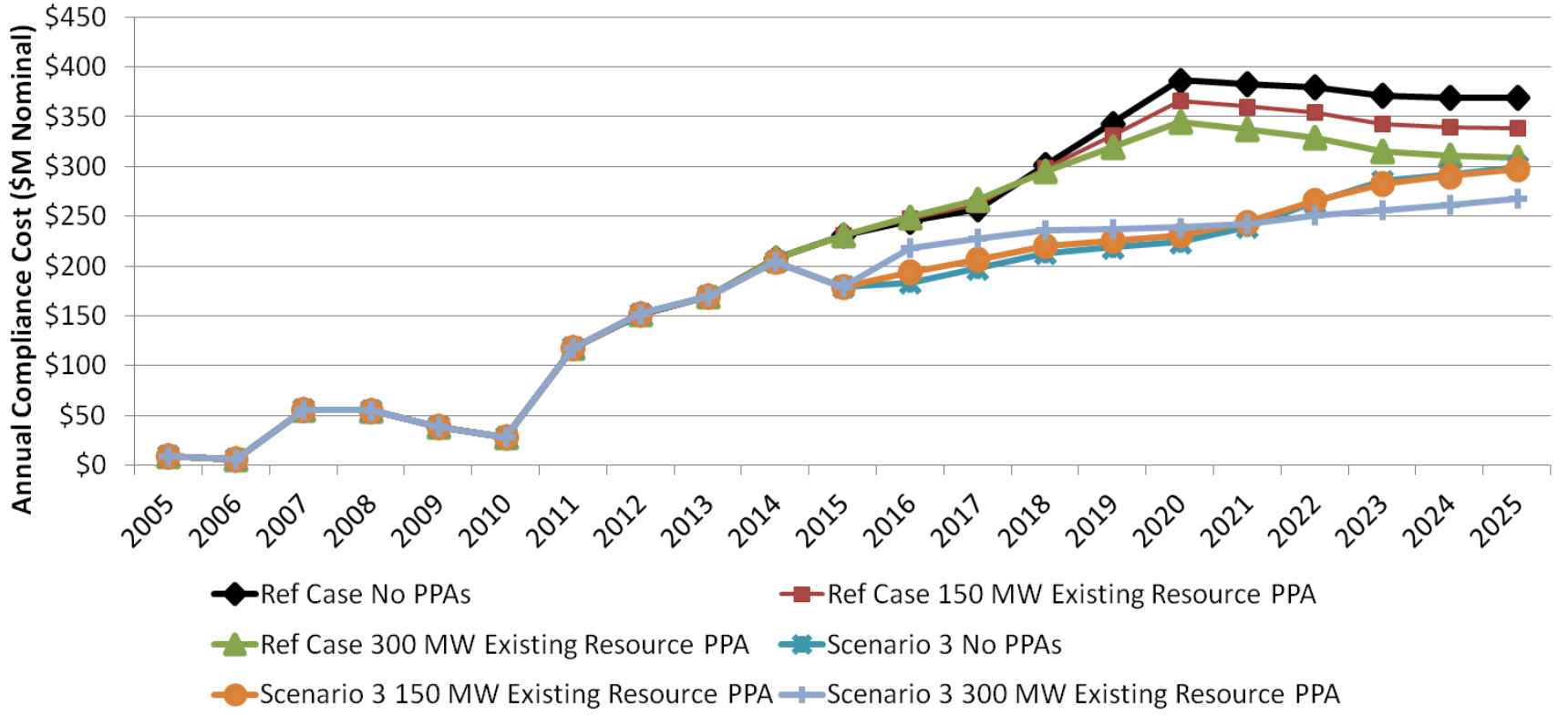
Class I RPS REC Price Projection: Reference Case & Scenario 3 Comparison with LT PPAs for Existing Resources ($/MWh)

	High Supply		Low Supply		*Bundled Operating Biomass (or other) Contract*		
Year	Reference Case	Scenario 3	Reference Case	Scenario 3	*@$75/ MWh*	*@$95/ MWh*	*@$100/ MWh*
2013	$52.06	$52.03	$52.25	$52.14	$28.67	$43.67	$53.67
2014	$44.27	$43.04	$51.98	$50.83	$29.76	$44.76	$54.76
2015	$31.12	$26.45	$46.94	$32.98	$30.06	$45.06	$55.06
2016	$25.69	$18.73	$43.79	$24.82	$30.49	$45.49	$55.49
2017	$28.12	$19.99	$40.77	$27.02	$29.61	$44.61	$54.61
2018	$31.55	$20.78	$46.01	$29.68	$28.06	$43.06	$53.06
2019	$32.26	$21.24	$49.99	$30.22	$24.84	$39.84	$49.84
2020	$32.16	$21.42	$54.39	$30.01	$21.73	$36.73	$46.73
2021	$37.18	$22.40	$54.12	$35.98	$19.77	$34.77	$44.77
2022	$44.11	$23.31	$53.53	$44.22	$17.24	$32.24	$42.24
2023	$50.71	$24.01	$52.94	$52.16	$14.75	$29.75	$39.75
2024	$50.87	$24.76	$52.73	$52.71	$13.58	$28.58	$38.58
2025	$50.87	$25.53	$52.73	$52.71	$12.39	$27.39	$37.39

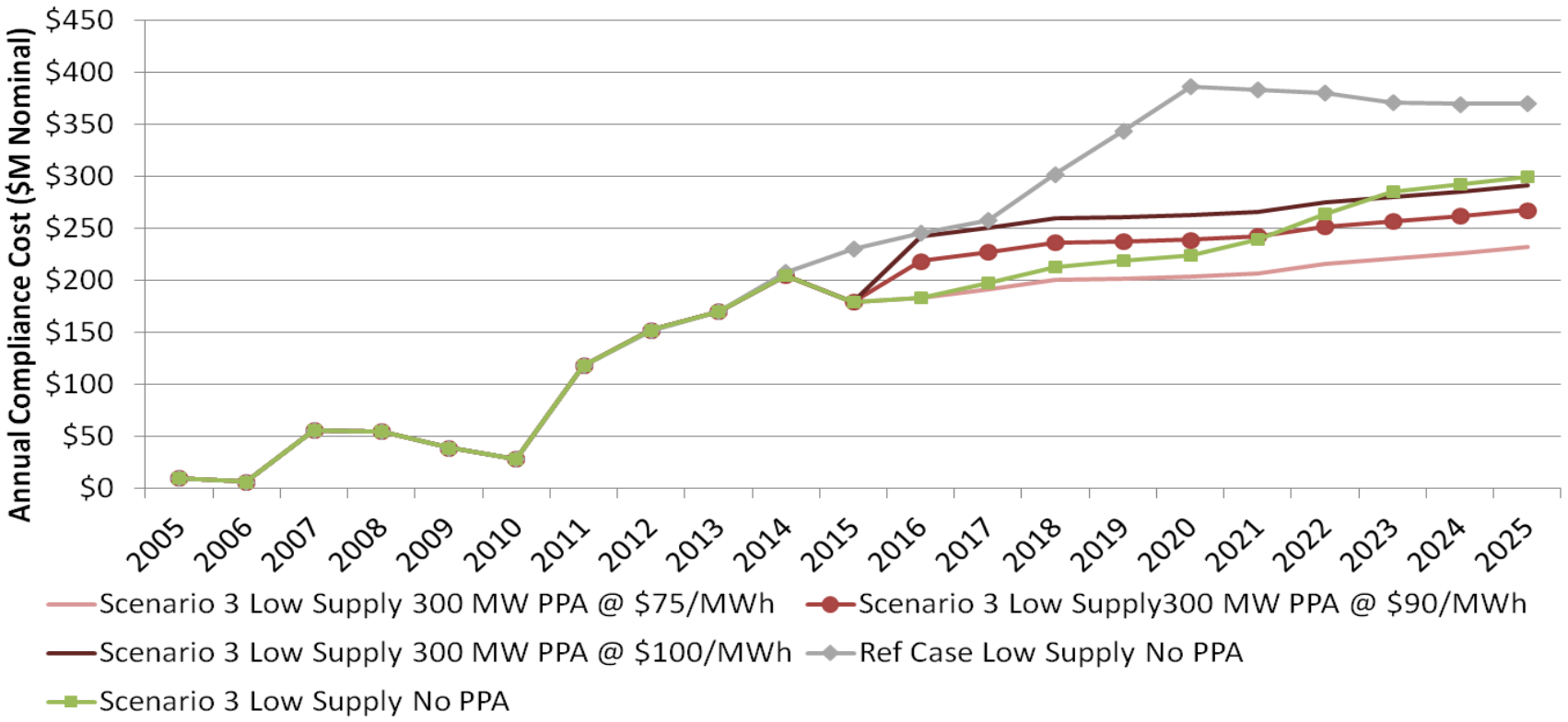
Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with Varying LT PPAs with Operating Resources @ $90/MWh (Levelized) Beginning 1/1/16 (Low Supply Case) ($M Nominal)

Year	Reference Case (Base)	Reference Case (150 MW 1/1/16)	Reference Case (300 MW 1/1/16)	Scenario 3 (Base)	Scenario 3 (150 MW 1/1/16)	Scenario 3 (300 MW 1/1/16)
2013	$169.80	$169.90	$169.90	$169.62	$169.62	$169.62
2014	$207.45	$207.56	$207.56	$204.56	$204.56	$204.56
2015	$230.29	$230.42	$230.42	$179.07	$179.07	$179.07
2016	$245.06	$247.18	$249.19	$172.68	$193.86	$218.30
2017	$257.22	$261.87	$266.40	$187.99	$206.32	$227.13
2018	$301.84	$298.47	$294.98	$205.63	$220.28	$236.11
2019	$343.12	$331.31	$319.30	$214.41	$225.80	$237.17
2020	$386.50	$365.83	$344.95	$221.81	$230.70	$238.65
2021	$383.10	$360.14	$337.25	$241.99	$243.88	$242.45
2022	$379.57	$354.16	$328.98	$272.81	$265.17	$251.00
2023	$370.84	$342.83	$315.40	$299.75	$282.88	$256.38
2024	$369.23	$339.93	$311.37	$308.64	$290.33	$261.79
2025	$369.51	$338.65	$308.68	$316.53	$297.24	$267.30

Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with Varying LT PPAs for Operating Resources @ $90/MWh (Levelized) Beginning 1/1/16 (Low Supply Case) ($M Nominal)

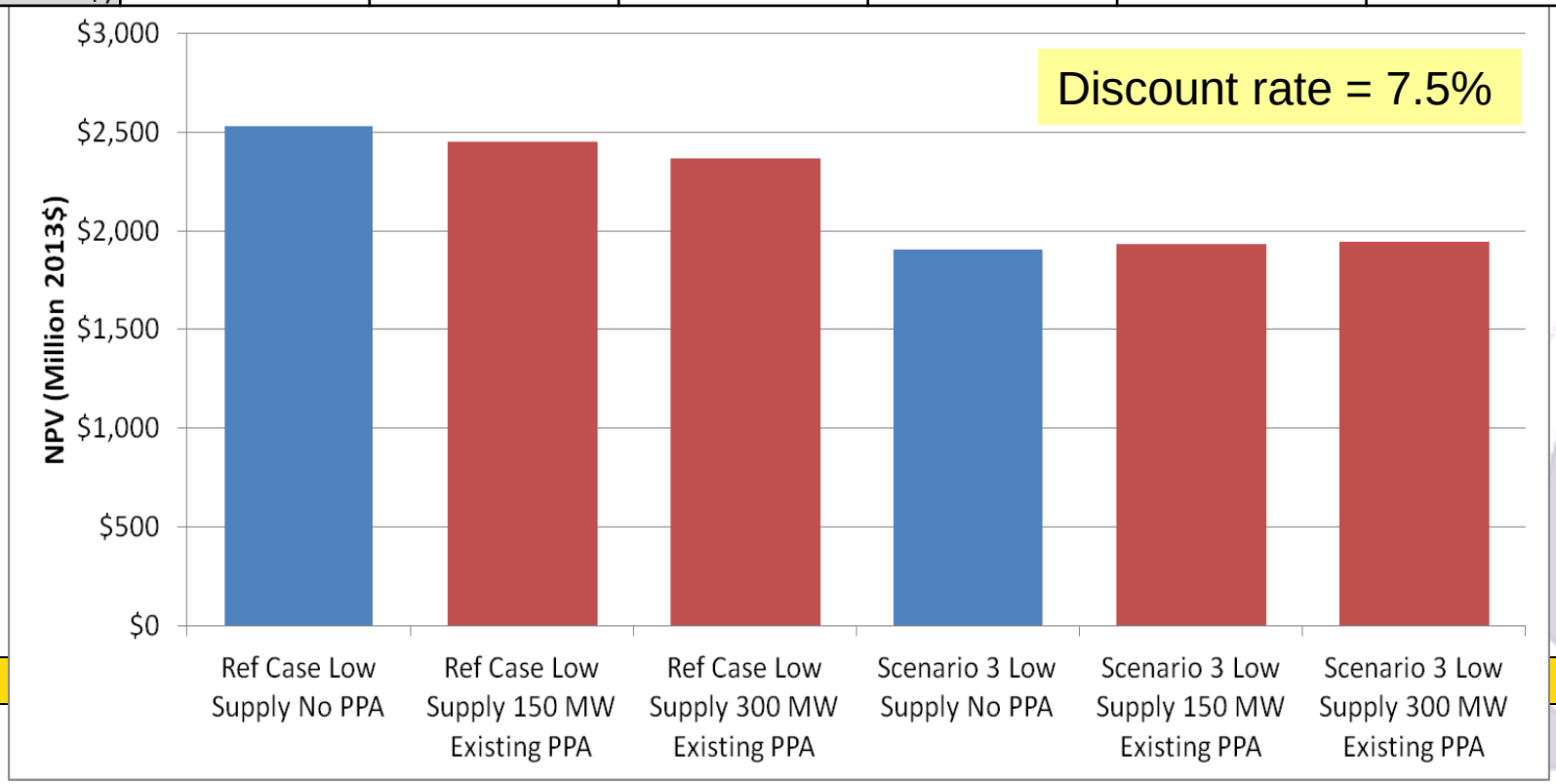


Class I RPS Annual Compliance Cost Projection: Reference Case & Scenario 3 Sensitivity with 300 MW PPA for Operating Resources @ $75, $90 & $100/MWh (Low Supply Case)



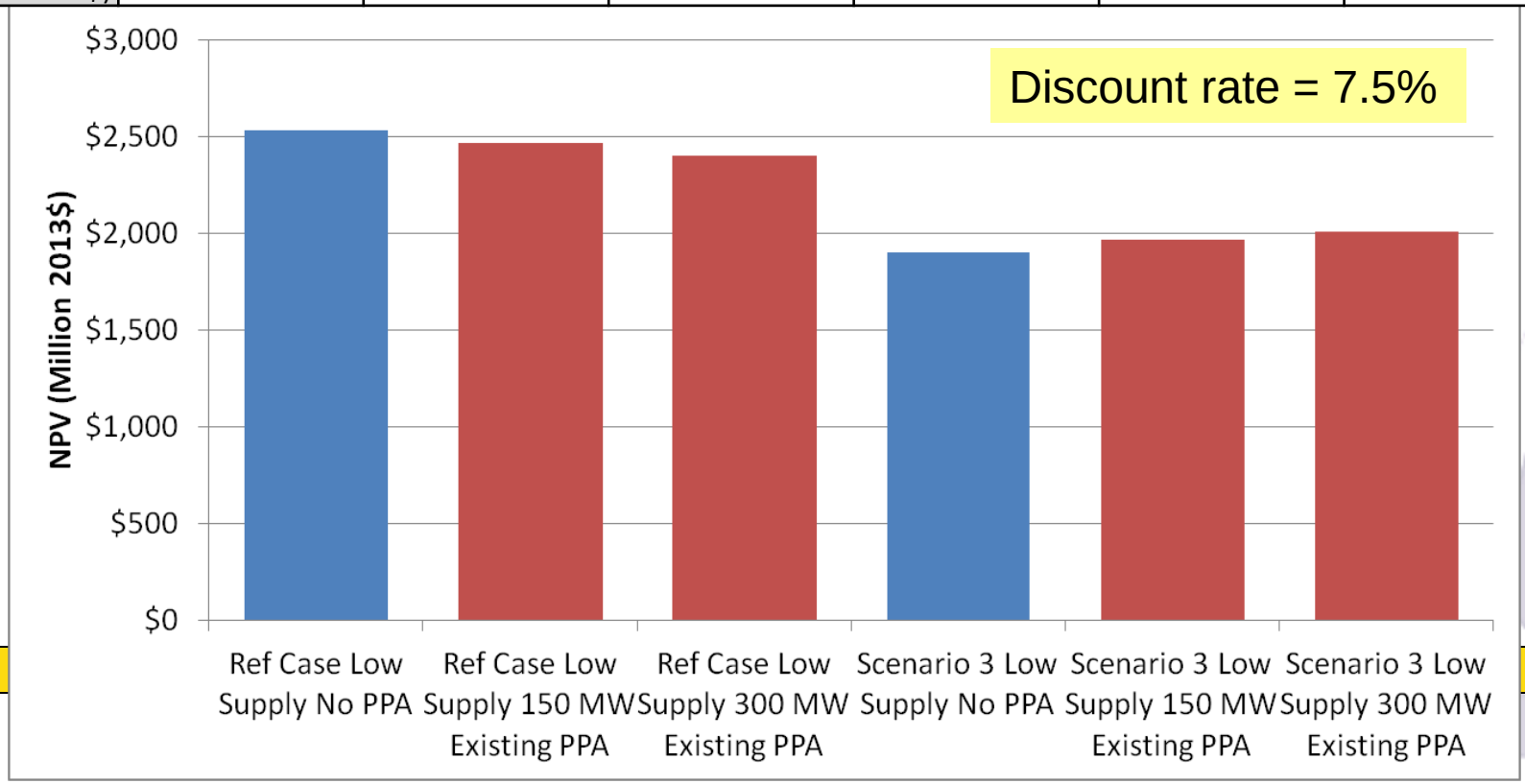
NPV of Projected Class I RPS Compliance Costs 2013-2025: Reference Case & Scenario 3 Sensitivity Varying LT PPAs for Operating Resources @ $90/MWh (Levelized) Beginning 1/1/16 (Low Supply Case)

	Ref Case, Low Supply No PPAs	Ref Case, Low Supply 150 MW PPA	Ref Case, Low Supply 300 MW PPA	Scenario 3, Low Supply No PPA	Scenario 3, Low Supply 150 MW PPA	Scenario 3, Low Supply 300 MW PPA
NPV 2013-2025 (Million 2013$)	$2,532	$2,449	$2,367	$1,902	$1,932	$1,944



NPV of Projected Class I RPS Compliance Costs 2013-2025: Reference Case & Scenario 3 Sensitivity Varying LT PPAs for Operating Resources @ $90/MWh (Levelized) Beginning 7/1/13 (Low Supply Case)

	Ref Case, Low Supply No PPAs	Ref Case, Low Supply 150 MW PPA	Ref Case, Low Supply 300 MW PPA	Scenario 3, Low Supply No PPA	Scenario 3, Low Supply 150 MW PPA	Scenario 3, Low Supply 300 MW PPA
NPV 2013-2025 (Million 2013$)	$2,532	$2,466	$2,401	$1,902	$1,965	$2,009



Observations:

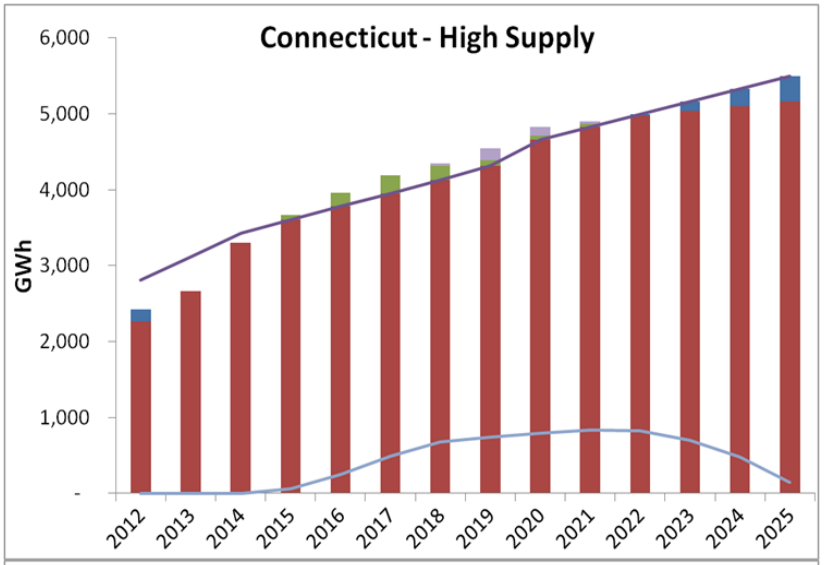
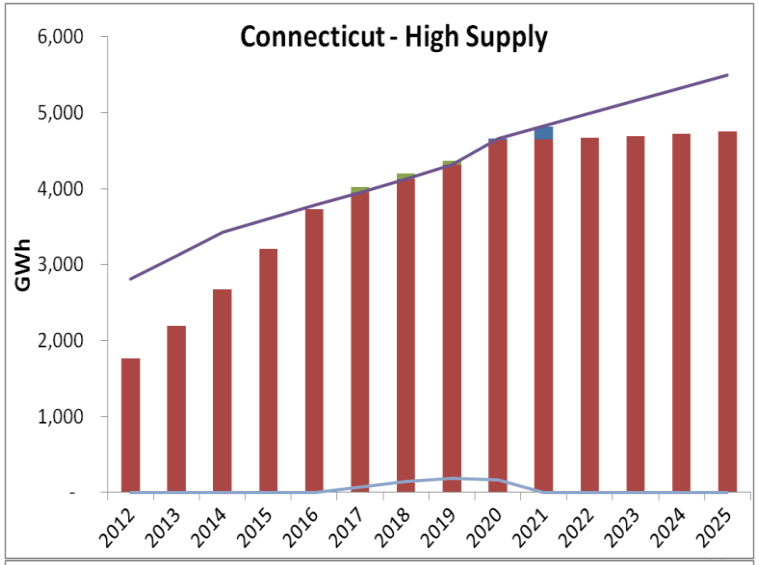
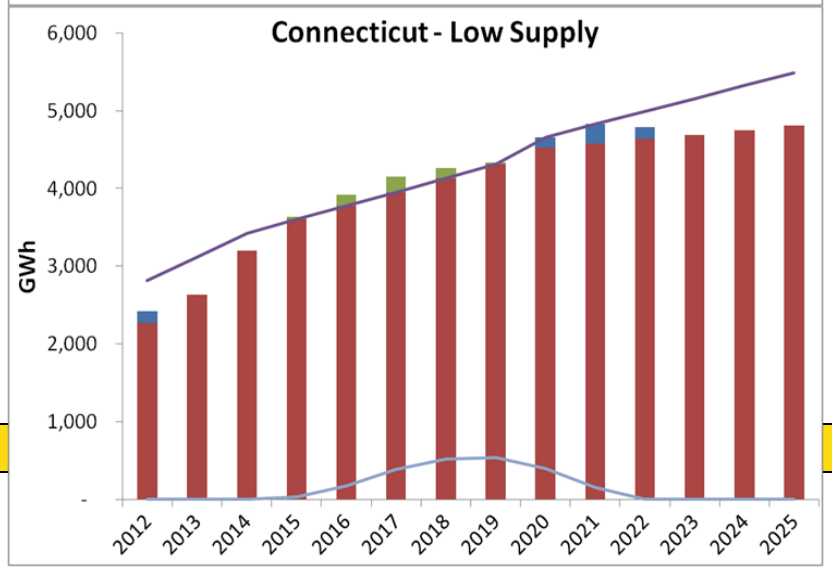
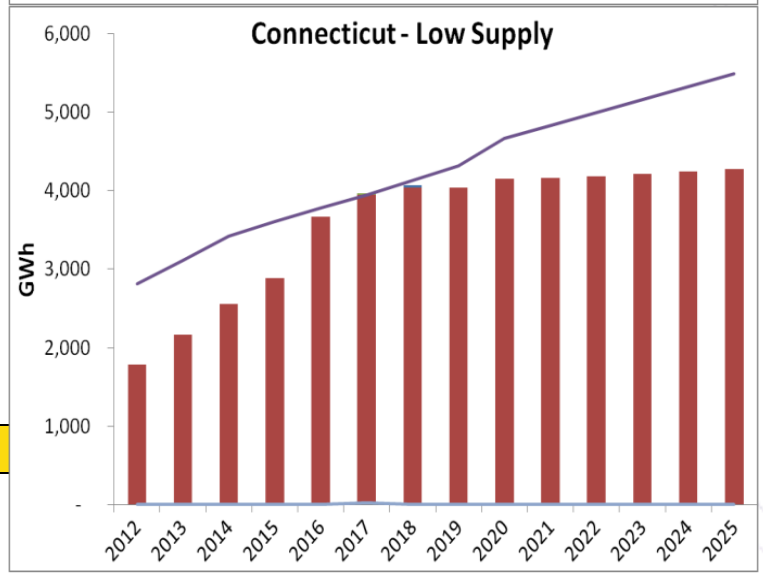
- PPA Scenarios can be additive if CT pursues both new and operating PPAs
- Since hedge benefits are shown to increase over time, extending the analysis over time (e.g. NPV over PPA duration for new resources) would show materially greater NPV savings compared to reference case (requires additional analysis)
- There may be prices and volumes at which NPV of compliance costs PPAs for both new and operating resources (compared to Reference Case) can approach the Scenario 3 NPV of compliance costs

Biomass Eligibility Sensitivity

Explanation and Methodology

- This scenario examines the possible effects of implementing more stringent standards for operating resources (in particular, biomass emissions restrictions) proposed in SB 1138 but not analyzed in the RPS Study.
- There is substantial uncertainty as to the amount of supply that could comply and whether plants could justify investments in emission retrofits.
- The sensitivity (run on Scenario 3) assumes that only biomass resources will be affected, and considers futures in which 25%, 50% and 75% of the operating biomass fleet remain Class I eligible beyond 2015.
- Supply and demand are modeled to project REC prices and potential supply shortages under each outlook
- Results are fed back through the compliance cost model to calculate annual and total compliance costs

Scenario 3 Biomass Eligibility Sensitivity: Supply-Demand Balance w/ Reduced Biomass Eligibility

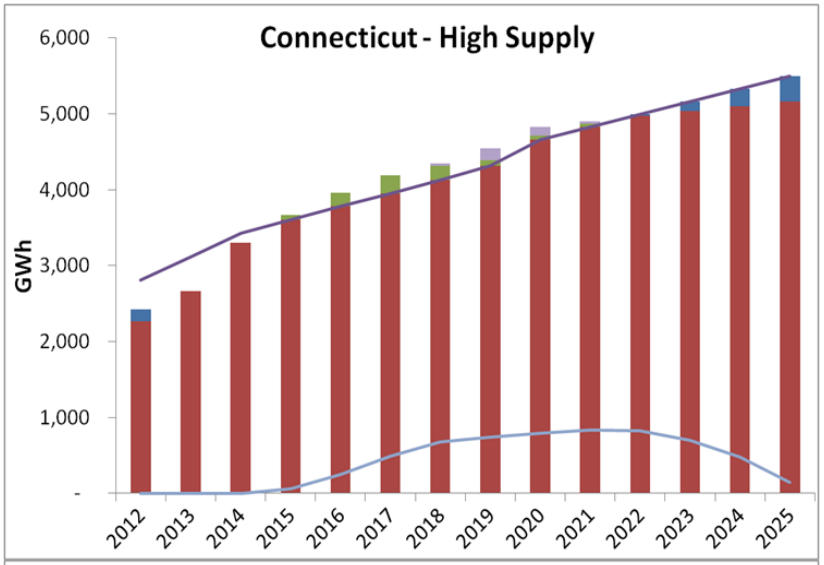
	100% Eligible (Base Case)	25% Eligible
High Supply		
Low Supply		

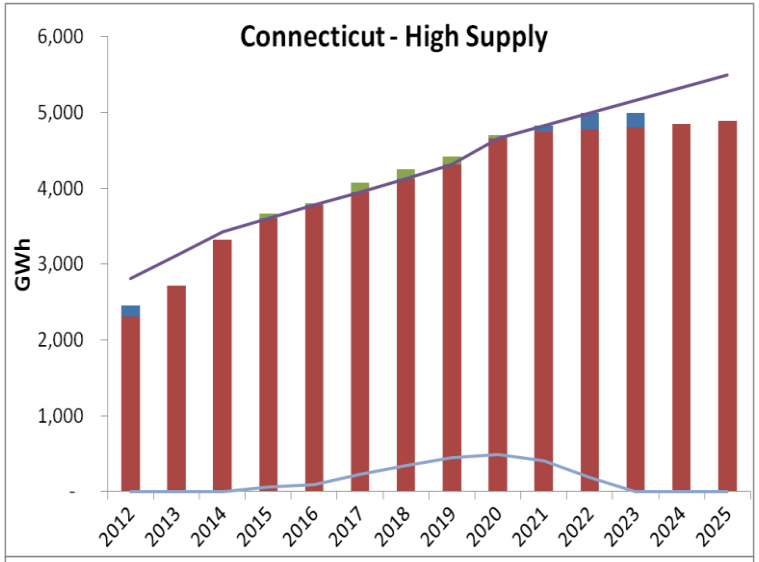
Scenario 3 Biomass Eligibility Sensitivity: Supply-Demand Balance w/ Reduced Biomass Eligibility

100% Eligible (Base Case)

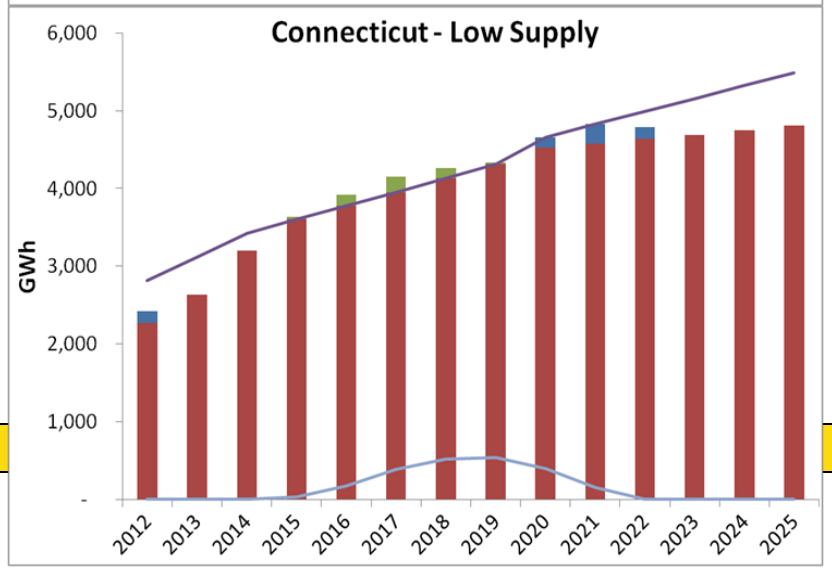
50% Eligible

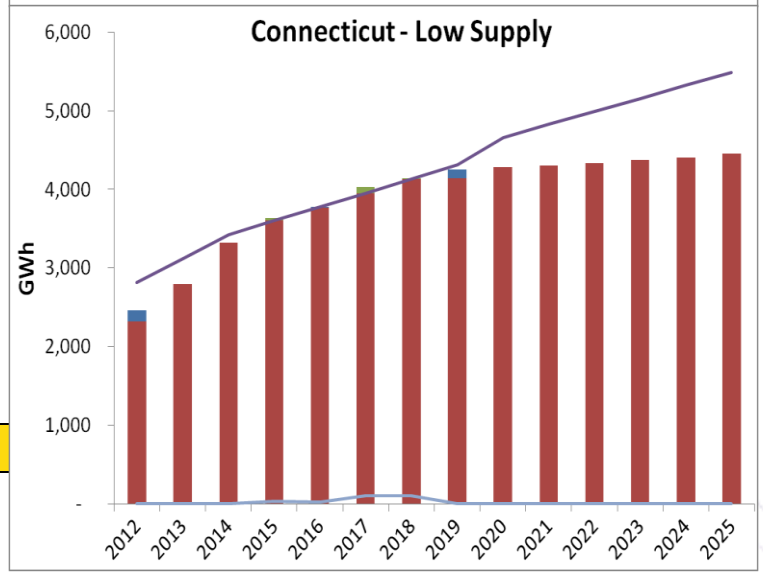
High Supply



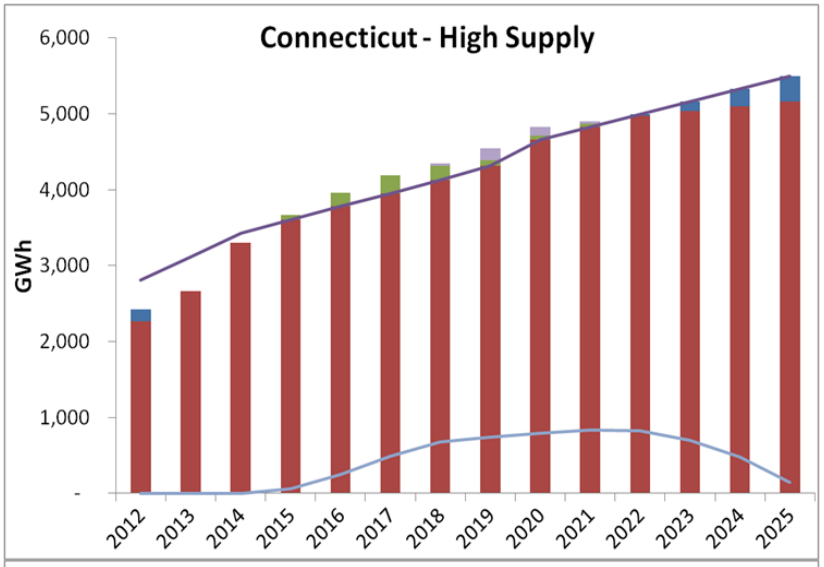
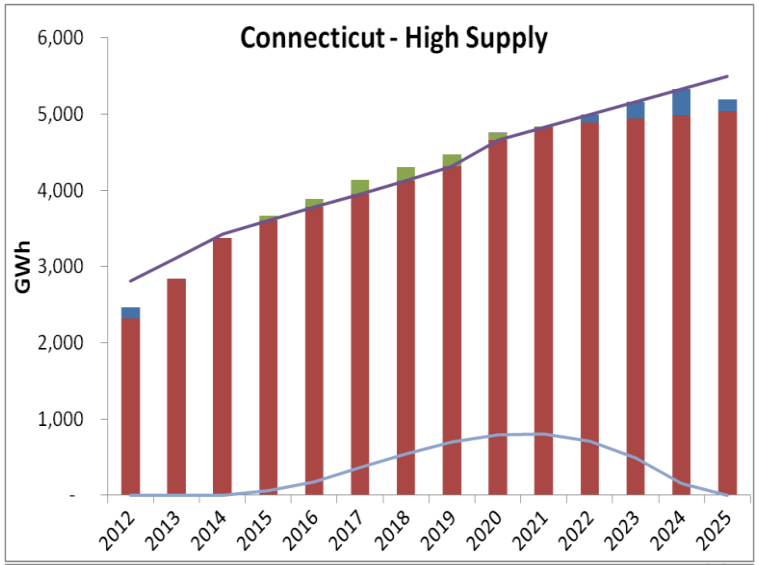
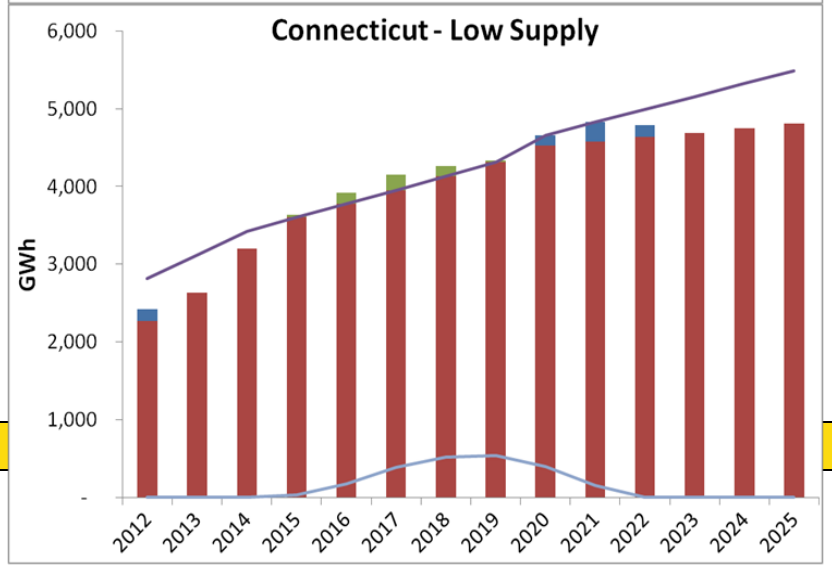
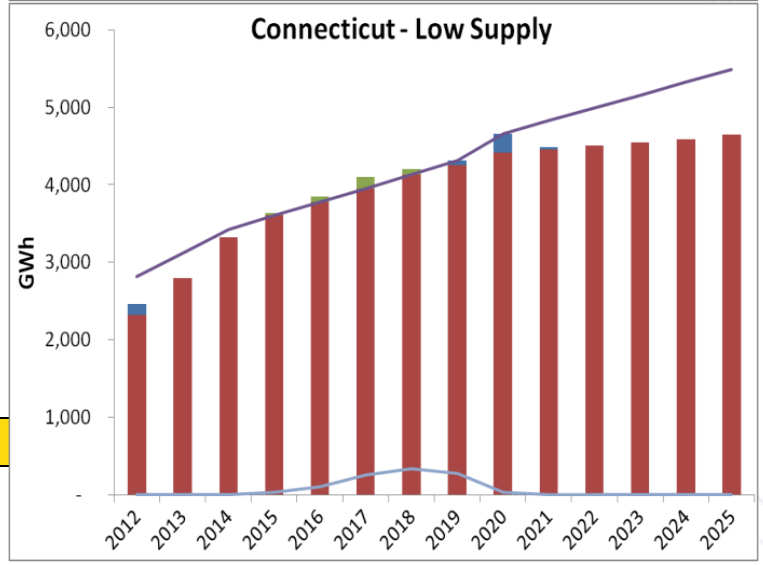


Low Supply





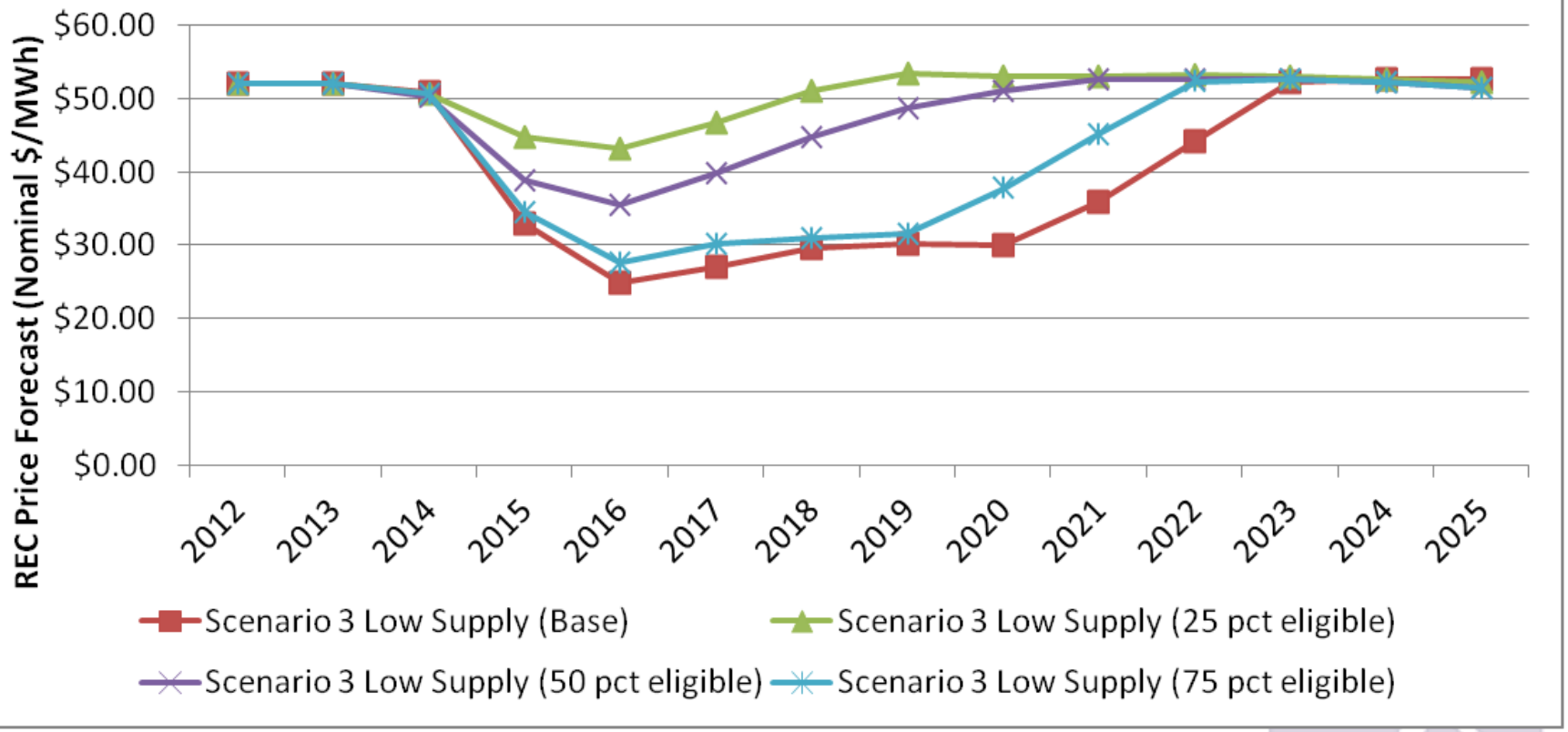
Scenario 3 Biomass Eligibility Sensitivity: Supply-Demand Balance w/ Reduced Biomass Eligibility

	100% Eligible (Base Case)	75% Eligible
High Supply		
Low Supply		

Class I RPS REC Price Projection: Scenario 3 Sensitivity for Reduced Biomass Eligibility ($/MWh)

$/MWh	High Supply					Low Supply				
	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 pct Eligible)	Scenario 3 (50 pct Eligible)	Scenario 3 (75 pct Eligible)	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 pct Eligible)	Scenario 3 (50 pct Eligible)	Scenario 3 (75 pct Eligible)
2013	$52.06	$52.03	$52.06	$52.06	$52.03	$52.25	$52.14	$52.12	$52.09	$52.12
2014	$44.27	$43.04	$50.00	$50.00	$43.04	$51.98	$50.83	$50.63	$50.31	$50.63
2015	$31.12	$26.45	$41.78	$31.96	$26.94	$46.94	$32.98	$44.72	$38.79	$34.59
2016	$25.69	$18.73	$35.58	$23.59	$19.54	$43.79	$24.82	$43.10	$35.52	$27.59
2017	$28.12	$19.99	$34.01	$25.58	$20.94	$40.77	$27.02	$46.65	$39.77	$30.27
2018	$31.55	$20.78	$35.50	$27.99	$23.29	$46.01	$29.68	$51.12	$44.71	$31.05
2019	$32.26	$21.24	$37.11	$31.41	$24.01	$49.99	$30.22	$53.44	$48.75	$31.58
2020	$32.16	$21.42	$42.27	$31.76	$27.13	$54.39	$30.01	$53.07	$51.13	$37.77
2021	$37.18	$22.40	$45.80	$31.29	$26.87	$54.12	$35.98	$53.02	$52.67	$45.19
2022	$44.11	$23.31	$50.69	$36.28	$27.84	$53.53	$44.22	$53.23	$52.70	$52.35
2023	$50.71	$24.01	$50.71	$43.62	$25.90	$52.94	$52.16	$53.02	$52.63	$52.63
2024	$50.87	$24.76	$50.55	$50.64	$33.91	$52.73	$52.71	$52.67	$52.32	$52.32
2025	$50.87	$25.53	$49.90	$50.91	$49.13	$52.73	$52.71	$52.31	$51.54	$51.54

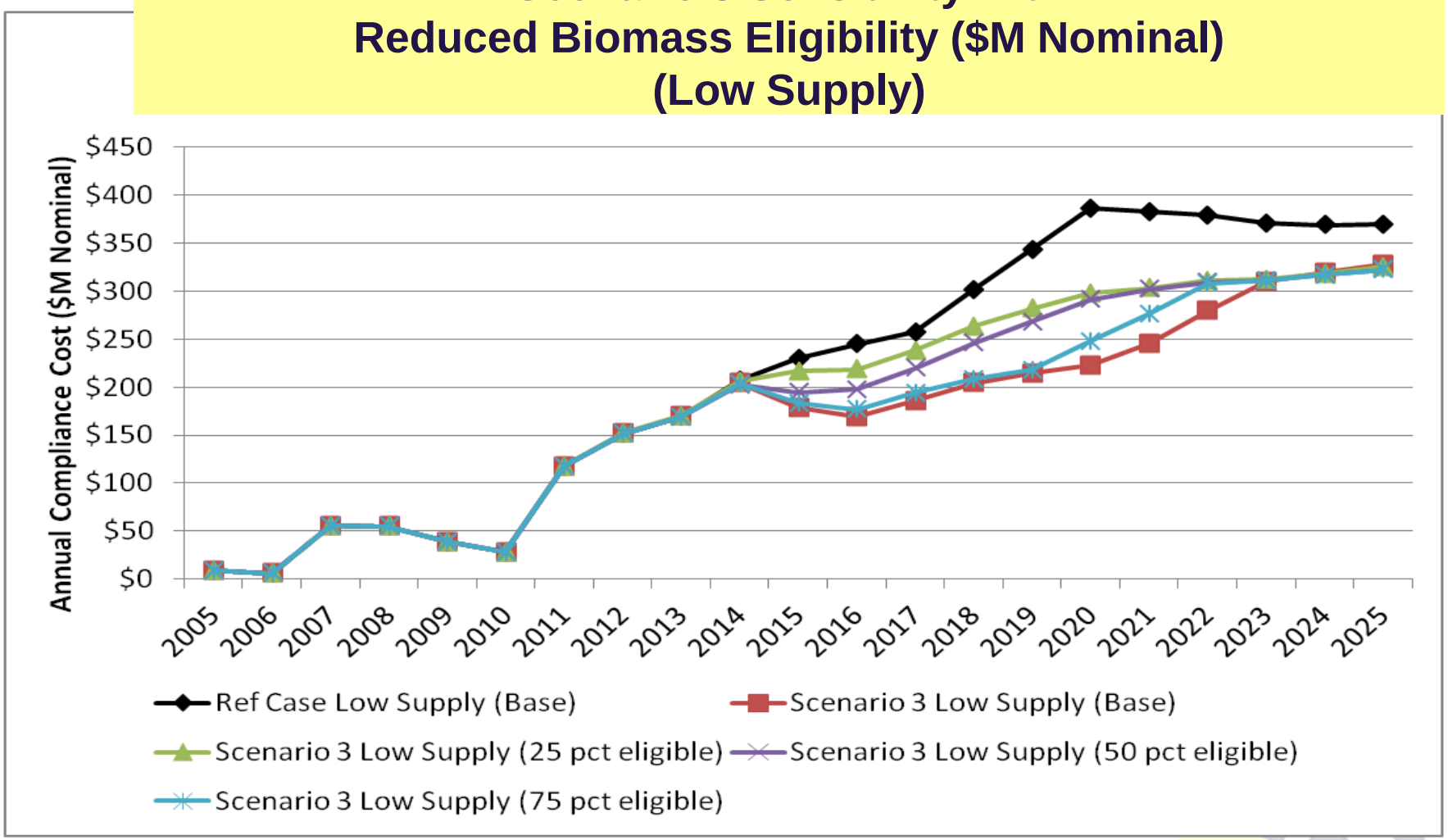
Class I RPS REC Price Projection: Scenario 3 Sensitivity for Reduced Biomass Eligibility ($/MWh) (Low Supply Case)



Class I RPS Annual Compliance Cost Projection: Scenario 3 Sensitivity with Reduced Biomass Eligibility ($M Nominal)

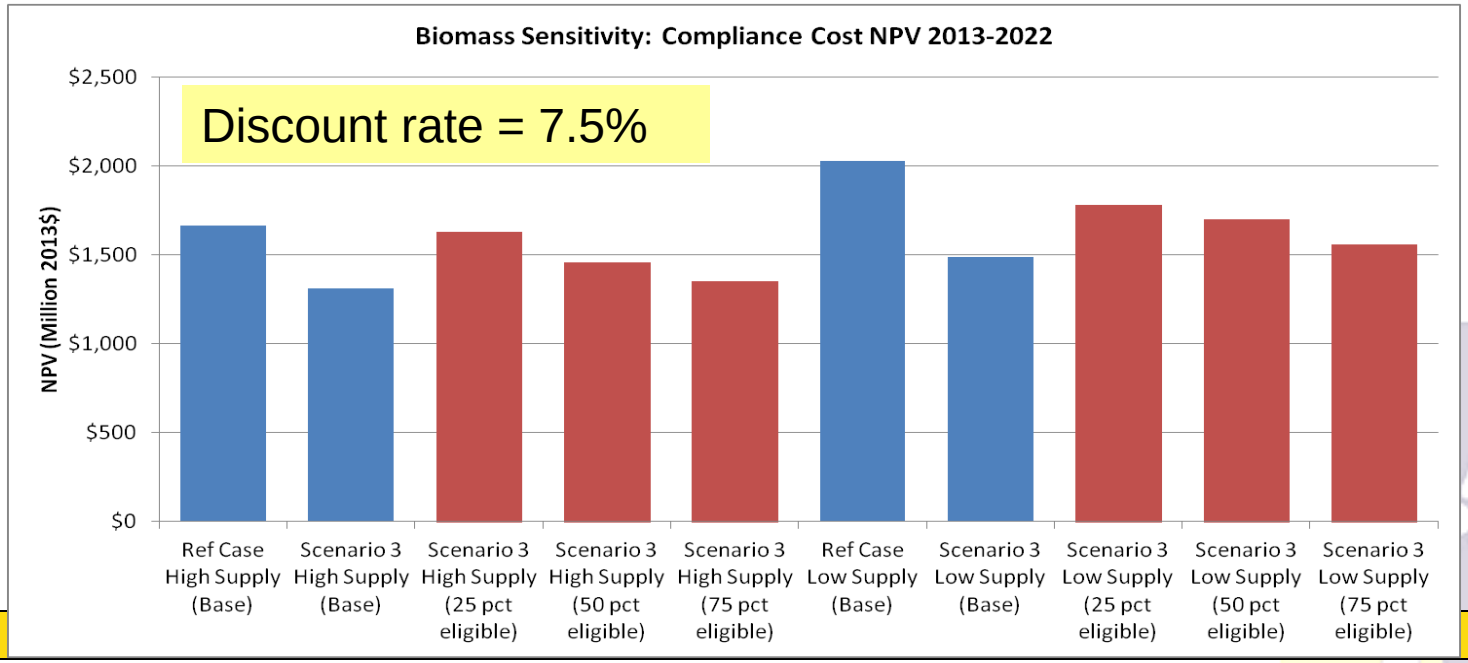
	High Supply					Low Supply				
	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 % Eligible)	Scenario 3 (50 % Eligible)	Scenario 3 (75 % Eligible)	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 % Eligible)	Scenario 3 (50 % Eligible)	Scenario 3 (75 % Eligible)
2013	$169.31	$169.23	$169.77	$169.19	$168.59	$169.80	$169.52	$169.91	$168.84	$168.92
2014	$187.45	$184.28	$204.15	$202.07	$182.74	$207.45	$204.46	$205.95	$202.69	$203.56
2015	$182.70	$161.17	$205.91	$176.25	$162.56	$230.29	$178.98	$217.13	$194.89	$183.44
2016	$186.24	$153.02	$198.30	$166.12	$155.24	$245.06	$169.35	$218.50	$198.13	$176.87
2017	$212.38	$166.54	$204.34	$181.64	$169.14	$257.22	$185.44	$238.40	$219.87	$194.28
2018	$245.48	$179.82	$220.57	$199.81	$186.83	$301.84	$204.38	$263.72	$246.01	$208.26
2019	$266.22	$188.15	$234.51	$217.89	$196.33	$343.12	$214.30	$282.10	$268.43	$218.40
2020	$279.71	$194.76	$262.62	$228.44	$213.39	$386.50	$222.63	$297.71	$291.39	$247.99
2021	$301.66	$199.11	$278.73	$229.36	$214.32	$383.10	$245.32	$303.30	$302.11	$276.66
2022	$334.25	$205.03	$302.34	$251.08	$221.08	$379.57	$279.46	$311.38	$309.51	$308.25
2023	$360.05	$204.98	$303.99	$277.62	$211.80	$370.84	$309.87	$312.58	$311.13	$311.13
2024	$360.26	$210.71	$310.48	$310.83	$245.93	$369.23	$319.49	$318.70	$317.35	$317.35
2025	$360.52	$217.64	$315.83	$319.91	$312.70	$369.51	$327.97	$325.59	$322.46	$322.46

Class I RPS Annual Compliance Cost Projection: Scenario 3 Sensitivity with Reduced Biomass Eligibility ($M Nominal) (Low Supply)



NPV of Projected Class I RPS Compliance Costs 2013-2022: Scenario 3 Sensitivity w/ Reduced Biomass Eligibility (Million 2013$)

	High Supply					Low Supply				
	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 % Eligible)	Scenario 3 (50 % Eligible)	Scenario 3 (75 % Eligible)	Reference Case (Base)	Scenario 3 (Base)	Scenario 3 (25 % Eligible)	Scenario 3 (50 % Eligible)	Scenario 3 (75 % Eligible)
NPV 2013-2022:	$1,666.30	$1,311.13	$1,628.36	$1,457.02	$1,352.32	$2,030.26	$1,488.50	$1,782.19	$1,701.91	$1,556.82



25x25 with No Contracted Class-I Tier

Explanation and Methodology

- Based on interest from commenting parties, compliance costs were calculated for a 25x25 RPS case with no contracted Class-I tier
- Analysis re-run to calculate the new cost of entry for 2021-2025 with increased demand, REC price forecast revised
- New REC prices run through compliance cost model as a revised reference case with new demand targets and updated REC prices

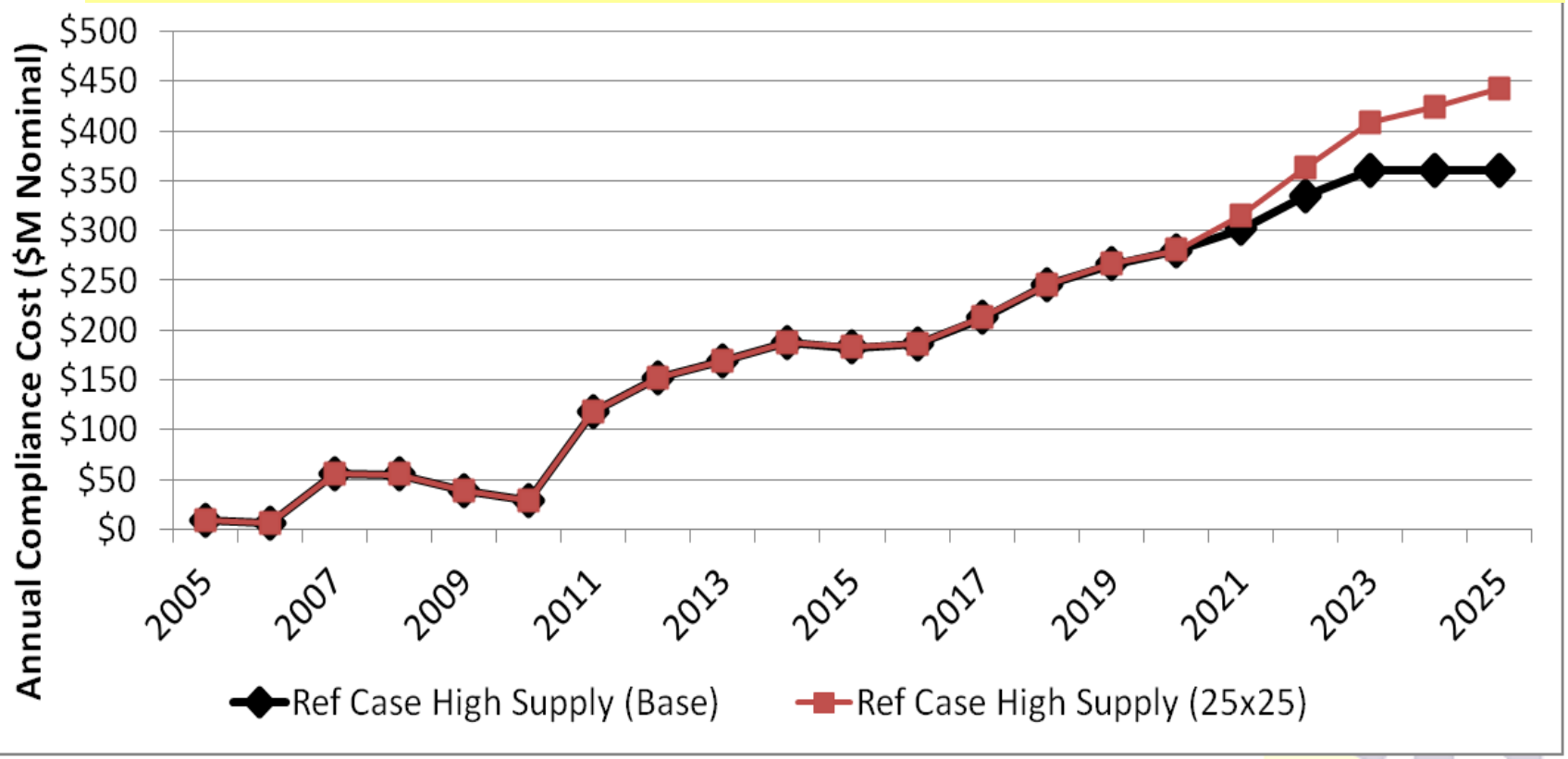
Class I RPS REC Price Projection: Reference Case Sensitivity for 25x25 RPS Target and no CCIT ($/MWh)

	High Supply		Low Supply	
	Reference Case (Base)	Reference Case (25x25)	Reference Case (Base)	Reference Case (25x25)
2013	$52.06	$52.06	$52.25	$52.25
2014	$44.27	$44.27	$51.98	$51.98
2015	$31.12	$31.15	$46.94	$46.94
2016	$25.69	$25.74	$43.79	$43.79
2017	$28.12	$28.19	$40.77	$40.77
2018	$31.55	$31.63	$46.01	$46.01
2019	$32.26	$32.34	$49.99	$49.99
2020	$32.16	$32.24	$54.39	$54.39
2021	$37.18	$37.48	$54.12	$54.13
2022	$44.11	$44.39	$53.53	$53.76
2023	$50.71	$50.97	$52.94	$53.43
2024	$50.87	$51.02	$52.73	$53.87
2025	$50.87	$51.29	$52.73	$54.73

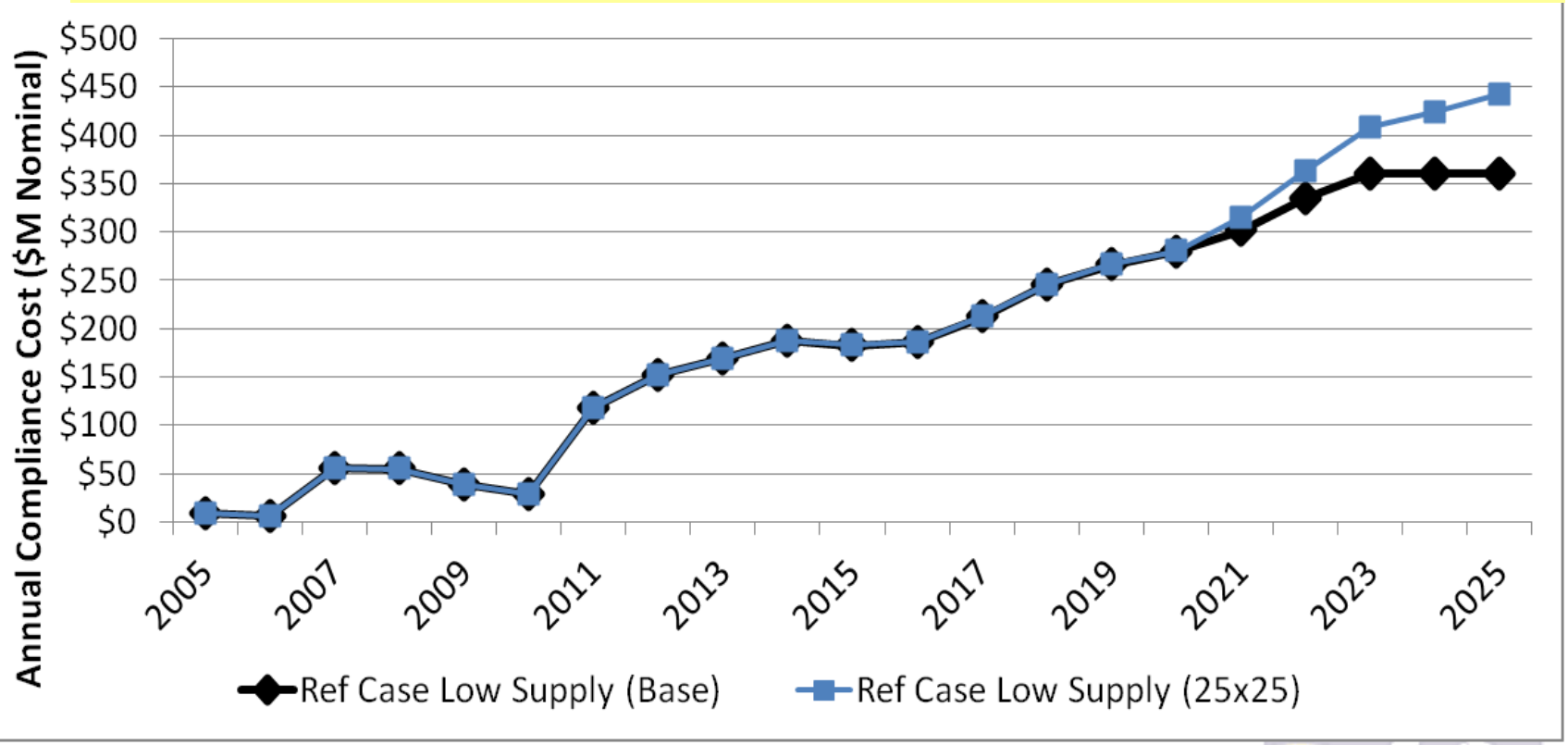
Class I RPS Annual Compliance Cost Projection: Reference Case Sensitivity w/ 25x25 and no CCIT ($M Nominal)

	High Supply		Low Supply	
	Reference Case (Base)	Reference Case (25x25)	Reference Case (Base)	Reference Case (25x25)
2013	$169.31	$169.42	$169.80	$169.86
2014	$187.45	$187.54	$207.45	$207.53
2015	$182.70	$182.89	$230.29	$230.43
2016	$186.24	$186.49	$245.06	$245.17
2017	$212.38	$212.69	$257.22	$257.33
2018	$245.48	$245.87	$301.84	$301.97
2019	$266.22	$266.69	$343.12	$343.32
2020	$279.71	$280.21	$386.50	$386.72
2021	$301.66	$314.74	$383.10	$399.94
2022	$334.25	$363.15	$379.57	$414.02
2023	$360.05	$408.59	$370.84	$422.73
2024	$360.26	$424.21	$369.23	$441.52
2025	$360.52	$442.11	$369.51	$464.10

Class I RPS Annual Compliance Cost Projection: Reference Case Sensitivity w/ 25x25 and no CCIT ($M Nominal) (High Supply Case)



Class I RPS Annual Compliance Cost Projection: Reference Case Sensitivity w/ 25x25 and no CCIT ($M Nominal) (Low Supply Case)



NPV of Projected Class I RPS Compliance Costs 2013-2025: Reference Case Sensitivity w/ 25x25 and No CCIT (Million 2013$)

	High Supply		Low Supply	
	Reference Case (Base)	Reference Case (25x25)	Reference Case (Base)	Reference Case (25x25)
NPV 2013-2025:	$2,155	$2,266	$2,532	$2,658